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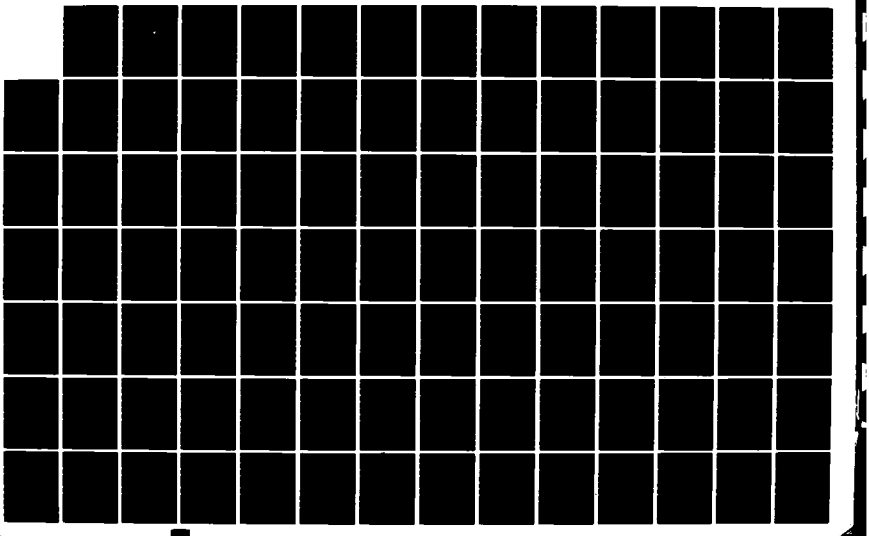

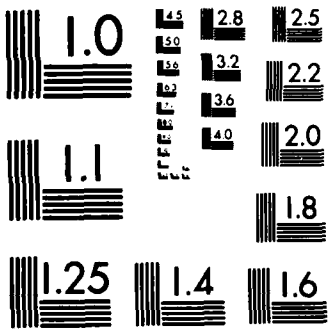

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RETENTION SEVERITY IN THE NAVY:
A COMPOSITE INDEX

by

Michael A. Driggers, I

June 1983

Thesis Advisor: George Thomas

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Retention Severity in the Navy:
A Composite Index

by

Michael A. Driggers, I
Lieutenant, United States Navy
B.A., University of North Carolina at Charlotte, 1975

Submitted in partial fulfillment of the
requirements for the degree of

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June 1983

Author: Michael A. Driggers, I

Approved by: George W Thomas
Thesis Advisor

Joseph D. San Miguel
Second Reader

Richard S. Elster
Chairman, Department of Administrative Sciences

Kneale T. Marshall
Dean of Information and Policy Sciences

ABSTRACT

The purpose of this thesis was to develop a Retention Severity Index (RSI) for 99 Navy enlisted ratings. The RSI model was developed from an analysis of factors relating to the Navy's demand for experienced personnel in each rating. The multiattribute RSI model is a composite index of five personnel components: (1) shortage, (2) growth, (3) size, (4) cost, and (5) priority. The RSI model generated an expression of the relative retention severity for each of 99 occupations (ratings) for each of the Selective Reenlistment zones (A,B,C). The intent of the RSI is to assist in the assignment of SRB bonus multiples.

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I. INTRODUCTION AND LITERATURE REVIEW

A. INTRODUCTION

Since the inception of the All Volunteer Force in 1973, the Navy, as well as the other services, has had to actively compete in the civilian labor market to meet its essential manpower requirements. This competition is not only for the recruitment of new accessions, but for the retention of experienced personnel in the Navy's Career Force. The Navy has historically relied on cash incentives to aid these recruitment and retention efforts since shortly after the Revolutionary War. The Navy has had a reenlistment cash bonus program in effect since 1791 under various names such as: Bounty for Reenlistment; Honorable Discharge Gratuity; Enlistment Allowance; Reenlistment Allowance; Reenlistment Bonus; Regular Reenlistment Bonus; Variable Reenlistment Bonus; and Selective Reenlistment Bonus. Throughout the evolution of the original reenlistment cash bonus from the (Bounty for Reenlistment) of $6 for all sailors reenlisting to the present Selective Reenlistment Bonus (maximum payment of $20,000) the primary purpose of a cash reenlistment incentive has remained the same. That purpose is to maintain an adequate level of experienced and qualified enlisted personnel in the peacetime Navy.

Authority for the Selective Reenlistment Bonus (SRB) Program was established by the Armed Forces Enlisted Personnel

Bonus Revision Act of 1974. The purpose of the Act of 1974 was:

> to provide a monetary incentive to encourage personnel in critical military skill specialties with high training costs to reenlist.

The Act of 1974 provided for a maximum cash bonus of $15,000 payable to a member with at least 21 months and up to 10 years of continuous active service in a critical skill (rating) who contracted for an additional enlistment of at least three years.

Since 1974, authority for the SRB Program has been extended three times by Congress. With each of the three extensions, the policies governing SRB payments have been modified. The most recent extension, the Department of Defense Appropriation Authorization Act of 1981, emphasized the retention and manning problems in the Navy by expanding SRB eligibility criteria. As amended by the Act of 1981, a member's SRB eligibility is determined by the total length of service (LOS), the length of additional obligated service, and whether or not the member possesses a skill designated as "critical".

The amount of a cash bonus authorized by SRB policy is largely dependent on the member's LOS. The LOS eligibility criteria has been divided into three "zones" as shown in Table 1.1. SRB zones should not be interpreted as the first, second, and third reenlistment points. Instead, the SRB zones are used to assign a measure of importance to a member's years of continuous active service (experience). Additionally,

TABLE 1.1

SRB Zones by Length of Service

SRB Zone	Length of Service Boundaries
A	21 months--6 years
B	6 years--10 years
C	10 years--14 years

each Navy rating (occupational skill) is assigned a level of bonus award called the SRB bonus multiple. The bonus multiple ranges from 0 to 6 and is assigned to all ratings for each SRB zone (A,B,C). Computation of SRB payment requires determining the member's appropriate SRB zone from Table 1.1, and the bonus multiple for the member's particular rating specific to that SRB zone. Next, multiply the member's monthly base pay by the bonus multiple, then multiply that product by the number of years for which the member is reenlisting. This procedure is shown in Equation 1.1, where BP is the monthly base pay, BM is the SRB bonus multiple, and Y represents the number of years in the reenlistment contract.

$$BP \times BM \times Y = \text{SRB payment} \qquad (1.1)$$

However, current SRB policy restricts total payments to a maximum of $20,000. An example of this computation using Equation 1.1 is shown in Table 1.2.

TABLE 1.2

An Example of SRB Payment Computations

Consider an Aviation Ordnanceman Second Class Petty Office (AO2) wishing to reenlist for 4 years:

He is eligible under zone B (from Table 1.1). The bonus multiple for the AO rating in FY-82 is 2 (from Appendix F, Table F-1). The monthly base pay for an E5 petty officer with LOS 12 is $1004.20 (from DoD Pay Table).

--Applying Equation 1.1:

$$(\$1083.00) \times (2) \times (4 \text{ years}) = \$8,664.00$$

The AO2 will receive a total Selective Reenlistment Bonus payment of $8,664.00.

Throughout its numerous modifications, the SRB Program has continuously made reference to the "criticality" of Navy ratings. SRB policy still requires that a member be in a "critical" rating in order to be eligible for a reenlistment bonus. The procedure for determining a rating's degree of criticality has not been officially defined by SRB policy. Consequently, during the past decade, many attempts have been made by Navy managers and manpower analysts to define rating criticality for Navy ratings. These efforts have not resulted in an objective definition of the "critical rating". Instead this term has become a cliche given to individual interpretation. For that reason, this thesis endeavors to avoid undue reference to the criticality of Navy ratings.

Still, SRB policy dictates the identification of ratings that need reenlistment bonuses to maintain sufficient manning

levels. By identifying those ratings requiring a reenlistment bonus, the degree of retention severity for each rating relative to all Navy ratings is approximated. This task is implicitly accomplished through a series of negotiations primarily involving (1) the SRB Manager in OP-136, and (2) the Enlisted Community Managers (ECMs) in OP-132. A detailed accounting of this negotiation process was published by Butler, et al. (1980).

Even though portions of this negotiation process involve various computer models that forecast the total strength requirements, aggregate manpower goals, and feasible retention goals for the Navy, the final allocation of SRB bonus multiples to each rating is largely dependent on the individual personalities of the SRB Manager and the ECMs. This interaction between the SRB Manager and the ECMs is analagous to the interaction between Congress and Lobbyists. Congress enacts legislation for the "good of the country", but Lobbyists will try to persuade Congress to enact legislation favorable primarily for the good of the Lobbyists' clients. A novice or unpersuasive Lobbyist would not be as successful in dealing with Congress as an experienced Lobbyist who is very adept at these types of negotiations. Likewise, an ECM, is responsible for the "health and welfare" of a particular set of ratings. The more experienced the ECM is at negotiating SRB bonus multiples, the greater the probability that his ratings will receive a bonus. If the SRB Manager is experienced and persuasive, the SRB funds will be allocated

more in keeping with his point of view. Because the Navy rotates officer assignments frequently, there is always a variable experience mixture in OP-132 and OP-136.

Given the high turnover rate of key negotiators for the SRB Program, a computer model for assisting these negotiators is warranted. The purpose of this thesis is to develop a model to assess the retention severity of each rating. This will be accomplished through the derivation of a Retention Severity Index (RSI) Model which will index (rank) 99 Navy ratings. The Retention Severity Index will be a composite statement of the relative retention severity for the ratings listed in Appendix B, Table B-1.

To the extent that retention in the Navy is a function of both the Navy's demand for experienced personnel and the supply of reenlistees, the Retention Severity Index is derived mainly from factors relating to the Navy's demand for experienced personnel. The supply of reenlistees is affected by numerous manpower policies such as sea/shore rotation, quality of military life, and compensation. These supply factors impact the assignment of SRB multiples for each SRB zone. An analysis of both the supply and demand factors determining SRB multiples for Navy ratings would be beyond the scope of this thesis. Factors affecting the Navy's demand for reenlistees was selected as the RSI's emphasis given the lesser degree of analysis in that area in recent years.

The first phase for developing a Retention Severity Index is to identify factors affecting the importance of the loss of an experienced person in Navy ratings. Factors deemed important for a Retention Severity Index are:

1. Manpower requirements:

   What are the present and future manpower requirements for each rating?

   What is the current excess or shortage of manpower in each rating?

2. Manpower costs:

   What is the replacement cost of a sailor for each rating?

3. Priority assessment of Navy ratings:

   What is the importance of each rating to the Navy?

Although this list of questions is not exhaustive, it serves as the basis for analyzing the components of the RSI.

The Retention Severity Index for Navy ratings is not intended to replace the intuitive interaction between the SRB Manager and the Enlisted Community Managers. It is, however, a consistent and flexible method of deriving a baseline framework designed to assist in this interactive process.

The following section will summarize the most recent research accomplished in the subject area, as well as the research conducted in the area of developing a "Critical Rating Index" for Navy ratings. Chapters II through IV will detail the selection process of the RSI components

developed from analysis of each subject area. Chapter V will describe the derivation of the Retention Severity Index and apply it to the FY-82 SRB bonus multiples. Also, a Glossary of Manpower Terminology is compiled in Appendix A for reference.

B. LITERATURE REVIEW

The purpose of this section is to review the current research that has been accomplished in the areas of (1) manpower requirements, (2) manpower costs, and (3) assessing the priority of Navy ratings. Recent work on developing a "Critical Rating Index" will also be discussed.

During the past decade, the Navy has become increasingly aware of the need to maintain an experienced and highly skilled "Career Force". This has been prompted by the ever-increasing rate of technological growth in Naval weaponry coupled with rising manpower costs. This reality forces the Navy to compete directly with the private sector for the experienced petty officers in which a substantial training investment has been made. Unfortunately, the extent to which the Navy is able to compete with the private sector is limited by Congressional funding.

Currently, the Navy is the only Service to employ the Selective Reenlistment Bonus (SRB) Program and does so with notable success. Butler, et al. (1980) made a detailed study of the SRB Program and the existing computer models used by the SRB Manager in OP-136. This study identified the majority

of those models as being largely inappropriate, outdated, or too complex to be sensitive to the needs of OP-136. Butler's approach was to examine the existing framework of the SRB Program, then develop a model to provide the manpower data necessary for assigning an appropriate bonus multiple for those ratings that were subjectively classified as "critical".

The SRB award for reenlistment is determined in the following manner:

1. The individual's SRB Zone at the time of reenlistment is assigned a bonus multiple from 0 to 6.
2. SRB Zones are determined by Length of Service (LOS). The three zones have been established as: Zone A (21 months--6 years LOS), Zone B (6 years--10 years LOS), Zone C (10 years--14 years LOS).
3. The individual's monthly base pay is multiplied by the SRB bonus multiple to determine the annual bonus payment.
4. This annual amount is paid to the individual on the day of reenlistment and on the anniversary of the reenlistment day until the term of the reenlistment contract expires.

The overall effectiveness of the SRB Program was addressed in a memorandum by OP-132C (1982) using data from FY-81 and FY-82. The marginal cost of reenlistment was compared to three cost measures for each rating at LOS cells six, ten, and fourteen. The costs used in the comparison are:

1. Training Costs: An estimated rating-specific cost of training derived from CNET average costs adjusted by historical continuation rates
2. Replacement Costs: An "agricultural cost" measure that is derived from the Navy Enlisted Billet Cost Model and historical continuation rates

An agricultural cost is an estimate of the training costs associated with replacing a servicemember in a particular rating and LOS cell. This cost estimate accounts for attrition by specifying the number of new accessions required to yield the desired petty officer in the future. (For example, in order to "grow" a Boiler Technician 2nd Class Petty Officer with 11 years' experience, the requirement for new BT recruits may be 4 in order to produce a BT 2nd Class 11 years later.) Agricultural costs, however, do not account for the value the Navy receives from an individual progressing through the LOS cells.

3. CNA Costs: A first term "replacement" cost estimated by the Center for Naval Analyses (CNA) and adjusted by historical continuation rates (CNA cost estimates will be discussed in more detail later in this section)

The results of the comparison of cost data are highly supportive of the SRB Program although no in-depth analyses other than the cost comparisons were conducted.

Balis and Driscoll (1983) attempted to discern the optimum SRB award levels by using the Navy Comprehensive

Compensation and Supply Study (NACCS) Model developed by CNA. This model predicts the minimum cost mix between recruitment and reenlistment. Their results indicate the need for increased retention, but, unfortunately, their estimates of optimum SRB award levels are applicable only to recruits with four year obligations (4YO) and six year obligations (6YO). A significant drawback to their findings is the seemingly unrealistic difference between the estimated optimum bonus levels and the SRB policy constraints of a maximum bonus award level of 6. Their estimates would put the maximum bonus level as high as 20 for 4YOs and 19 for 6YOs. However, the implication of the study is to expand the SRB Program as much as Congressional policy would permit in order to achieve the minimum cost balance between first term enlistees and careerists.

A large amount of research has been conducted in the area of "Replacement Costs" during the past decade. Although multiple approaches have been taken in defining and re-defining the concept of replacement costs for Navy ratings, all have dealt with the underlying question of, "If a sailor does not reenlist, what is the Navy's cost of filling that vacancy?" Balis and Clay-Mendez (1982) estimated replacement costs for first term non-prior service males (CNA Costs) after having grouped them into 27 rating groups encompassing 65 ratings. The 65 ratings were selected largely because they all required entry through "A" School. These costs are inclusive of recruiting, recruit training, and "A" school

training costs and are categorized by quality measures then adjusted for attrition. For the servicemen in LOS 5, the replacement costs were estimated for all SRB bonus levels (0-6). These CNA costs were desirable for further consideration to be included in the Retention Severity Index, but data was not available for any LOS cells greater than 5.

Eskew, et al. (1978) analyzed the Bureau of Personnel's Billet Cost Model (BCM) (which has since been replaced by a more complete model developed by Frankel (1983)) and evaluated existing alternative sources of Naval manpower costs. Despite problems with estimating individual cost elements, the 1978 BCM was the model preferred by Eskew and associates. The existing alternative models, as listed below, were inadequate in estimating costs when manpower requirements could not be defined by rating and paygrade.

1. Navy Resource Model (NARM): Estimates the costs of alternative Naval force structures, but is unable to distinguish between types or levels of manpower.
2. Navy Composite Standard Rates (CSR): Provides for an average personnel cost by paygrade, but completely omits training costs.
3. OASD (Comptroller) Military Manpower Cost Reports: Issued biannually by the Office of the Assistant Secretary of Defense, omits direct training costs (i.e., military instructor costs) and some PCS costs, but includes a tax adjustment cost plus higher retirement cost estimates than the BCM.

Butler (1981) and (1982) presented a strong case argument in favor of using the Theory of Human Capital for estimating manpower costs. His cost estimations used the BCM as previously discussed and the calculations are easily adapted to use the new BCM of Frankel (1983).

The Human Capital Theory is used to estimate the value of marginal productivity (VMP) of an individual over a 20 year Navy career. The Navy "invests" in human capital through training costs and wages paid to sailors. The net return from this "investment" for the Navy is the difference between the imputed VMP and the Navy's "investment".

As shown in Figure 1.1, the application of Human Capital Theory implies a negative rate of return exists during the initial training period (time t_o to t_1). The investor (in this case, the Navy) will not exceed the "break even" until the individual's VMP rises above the investor's outlays enough to offset the initial period of negative return. In Figure 1.1, the Navy would have to retain the individual until time t_2 in order to regain its investment. The longer past t_2 the individual stays in the Navy, the greater the return for the Navy since, heuristically, the individual's VMP will continue to increase through job experience. This logic would apply to all training periods during an individual's Navy career with the bottom line for the Navy being, "Invest in training only when reasonably assured of a positive return..."

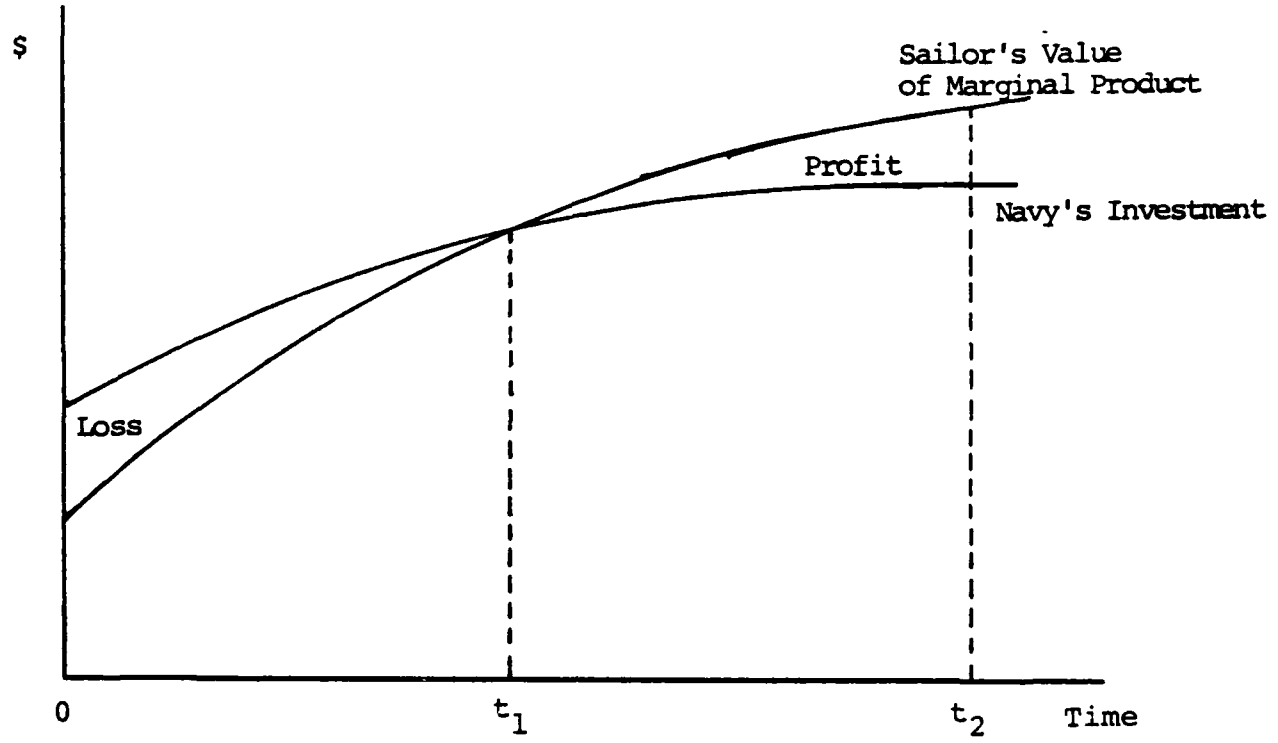

Figure 1.1 An Example of Human Capital Theory

Brazie (1982) attempted to develop a Critical Rating Index which would index Navy ratings based on their "Mission Criticality" and "Replacement Costs", which were defined as:

1. Mission Criticality: The classification of ratings by primary mission categories, type of command, and operational platform unit using OPNAVINST C3501.2F as a guideline.
2. Replacement Costs: An average cost estimation of replacing an individual in a particular rating at a specified LOS.

Brazie's analysis yielded five separate rankings of rating criticality; each one different from the others, and none covering all Navy ratings. His recommendations largely focused on a restructuring of many Navy manpower management policies. Although complex and seemingly sound in theory, Brazie's regression analysis yields highly unreliable statistical data based on the t-statistics and F-statistics from his regression equations.

A summary of models that either predict, measure, rank, or index Navy ratings by some measure of "criticality" was drafted by Hearold (1983). Her findings showed:

1. the need for a common definition of rating criticality and priority,
2. the need for a consolidation of some of the existing models, but not necessarily all,
3. the need of a rating index to be reproducible, acceptable to all users, and validated based on the purpose of the index,
4. the need of an index of ratings to augment the flexibility of human judgment and intuition, not replace it.

C. SUMMARY

For the purpose of this thesis, the development of a Retention Severity Index will adhere to the logic presented by Hearold (1983). Also, the RSI will be designed to specifically fit the decision-making environment of the SRB

Program. The following chapters detail the development of each component of the RSI. In addition to the Glossary in Appendix A, the majority of rating-specific data is tabled in the Appendices for quick reference.

II. MANPOWER REQUIREMENTS

A. DATA BASE

The data base used in developing the manpower requirements data was the Navy Enlisted Master File for Fiscal Year 1982 (FY-82). The data base included all personnel on active duty during the period September 30, 1981 to September 30, 1982. Data sources were:

1. Defense Manpower Data Center. Monterey, California
2. Navy Military Personnel Statistics: FY-82 Annual Report. NAVPERS 15658(A), Washington, D.C.

A total of 118 ratings were identified from the data base. Of these ratings, 99 were selected to be included in the RSI and are listed in Appendix B, Table B-1. Of the 19 ratings deleted from the RSI, one was the Aviation Support Equipment Technician (Hydraulics and Structures) Rating (ASH). The ASH rating was deleted because it is no longer an authorized Navy rating listed in the Enlisted Programmed Authorizations.

Also excluded from the RSI were the 18 Apprenticeship Ratings as shown in Appendix B, Table B-2. These ratings include only the three junior paygrades (E1, E2, E3). Apprenticeship Ratings are used as a general classification for junior enlisted personnel. Until they have been trained in a technical skill and advanced to the paygrade of E4, they will remain in one of the Apprenticeship Ratings.

Specifically, the Apprenticeship Ratings were omitted from the RSI because:

1. the Apprenticeship Ratings could not, as a group, be identified with a unique rating specialty. For example, a Seaman (SN) may choose to enter or "strike" for the Boatswain's Mate (BM) rating or the Musician (MU) rating.
2. the Navy Enlisted Billet Cost Model, Frankel (1983), lists billet cost data for the six E3 paygrades of the Apprenticeship Ratings, but excludes E1 and E2 billet cost data.
3. apprenticeship billets, per se, are excluded in the billets authorized in the Enlisted Programmed Authorization.

Of the 99 selected ratings, 15 are categorized as Senior Ratings. These ratings, listed in Appendix B, Table B-3, are comprised of highly skilled senior petty officers. Senior Ratings identify the senior enlisted managers that originate from diversified backgrounds within the same technical rating group.

For example, a Fire Control Technician (FT) enters that senior rating at the E8 paygrade from one of the following technical ratings in the FT rating group:

FTB	Fire Control Technician (Ballistic Missile Fire Control)
FTG	Fire Control Technician (Gun Fire Control)
FTM	Fire Control Technician (Surface Missile Fire Control)

Based on Length of Service requirements alone, very few

members of the 15 Senior Ratings qualify for a reenlistment bonus under the SRB Program. However, since some members of the Senior Ratings do qualify and these ratings are such an integral part of the Navy's skilled manpower framework, the Senior Ratings were included in the RSI.

B. DETERMINING MANPOWER REQUIREMENTS RELATIVE TO SRB ZONES

As described in Chapter I, the major thrust of the Retention Severity Index (RSI) is directed toward the Selective Reenlistment Bonus (SRB) Program. Specifically, the RSI is intended to rationalize the process by which SRB award levels are assigned to each of the 99 ratings. In order to tailor the RSI to fit the Length of Service (LOS) constraints for each SRB zone, the manpower inventory data base had to be separated into three LOS categories. The LOS boundaries for these categories are shown in Table 2.1.

TABLE 2.1

Reenlistment Zones Used in the RSI

SRB Zone	LOS Boundaries
A	2 years - 6 years
B	6 years - 10 years
C	10 years - 14 years

The current manpower inventories (as defined in Appendix C) for the 99 ratings in the RSI are listed in the Navy Enlisted Master File by paygrade (E4 through E9) and by LOS

(0 to 20+ years). Since this data were not available by months of service vice years of service, the LOS boundaries for Zone A current inventories were modified in Table 2.1 to (2 years - 6 years) vice (21 months - 6 years).

A series of simple data transformations, as described below, were necessary to identify each SRB zone's unique current inventory profile. Once the current inventory data were separated into each LOS category in Table 2.1, each of the 99 ratings could then be identified by paygrade as well as SRB zone. The data was further transformed to be used in deriving each rating's zone-specific billet costs. This cost derivation will be discussed in detail in Chapter III.

The first part of this transformation was to sum, for each of the 99 ratings, the current manpower inventories in each of the six paygrades (E4 through E9). This resulted in a total current inventory for each rating in the RSI. This total inventory, in turn, was divided into each paygrade's current inventory. This procedure expressed each paygrade's inventory as a percentage of the total inventory as shown in Equation 2.1:

$$Y_{ijk} = \frac{X_{ijk}}{\sum_{i=E4}^{E9} X_{ijk}} \qquad (2.1)$$

where:

i = paygrade/E4,E5,E6,E7,E8,E9
j = rating/AB,ABE,...,UT,YN
k = zone/A,B,C

In Equation 2.1 (X_{ijk}) is the current manpower inventory for paygrade (i) of rating (j) in zone (k). When the (X_{ijk}'s) are divided by the total inventory ($\sum_{i=E4}^{E9} X_{ijk}$), the percentage expression (Y_{ijk}) is derived for each rating. Equation 2.1 is repeated for each SRB zone. The current inventories for the 99 ratings are listed in Appendix C, Tables C-1, C-2, and C-3 for SRB zones A, B, and C, respectively. The percentage current inventories are listed for zones A, B, and C in Appendix C, Tables C-4, C-5, and C-6, respectively.

The remaining two data transformations were directed at matching the current inventory data to the authorized billets for each of the 99 ratings. The Enlisted Programmed Authorizations (EPA) are given by rating and paygrade only. It was, therefore, necessary to develop a method of expressing billet authorizations to parallel the current manpower inventories for each SRB zone.

Initially, transformation of the billets authorized was attempted by multiplying them by the percentage current inventories (Y_{ijk}) from Equation 2.1. This resulted in an incomplete expression of billet authorizations because the percentage current inventories (Y_{ijk}) were derived from LOS-specific data for each of the six paygrades while the billets authorized are given by paygrade with no reference to Length of Service (LOS).

By adding the current inventories (Appendix C) for each LOS cell (0 through 20+ years) in each paygrade (E4 through

E9), the total current inventories were expressed for each rating by paygrade only. This succeeded in matching the current inventories with the billets authorized, but did not match the current inventories with SRB zones. By computing the summary statistics for this new file data for current inventories, the paygrade-specific current inventories were evaluated further. Shown in Table 2.2, it is readily apparent that each SRB zone's total current inventory is dominated by two paygrades. These paygrades, identified in Table 2.3, when added together for each SRB zone yield a single current inventory expression for each of the 99 ratings in each SRB zone. Likewise, the corresponding paygrade-specific billet authorizations were added together to parallel the dominant current inventory data.

TABLE 2.2

Summary Statistics for Current Manpower Inventories

PAYGRADE	CURRENT INVENTORIES			% CURRENT INVENTORIES		
	ZONE-A	ZONE-B	ZONE-C	ZONE-A	ZONE-B	ZONE-C
E4	762	59	6	.496	.079	.012
E5	542	294	52	.364	.441	.126
E6	24	241	240	.028	.360	.558
E7	0	5	82	.000	.008	.189
E8	0	0	2	.000	.000	.043
E9	0	0	0	.000	.000	.000

Having computed the dominant paygrade totals, each zone's population was represented. The next manipulation of the

TABLE 2.3

Dominant Paygrades for SRB Zones

SRB Zone	Dominant Paygrades	Percent of Total Inventory
A	E4 & E5	86%
B	E5 & E6	80%
C	E6 & E7	75%

manpower data required identifying the shortage (excess) of a rating's current inventory compared to that rating's billet authorizations. For each SRB zone an equation was derived to compute the shortage in manning for each rating such that:

$$S_j^k = \frac{(\text{Dominant paygrades billets authorized})_j^k - (\text{Dominant paygrades current inventory})_j^k}{(\text{Dominant paygrades billets authorized})_j^k} \qquad (2.2)$$

where:

j = rating/AB,ABE,...,UT,YN

k = zone/A,B,C

The equations as expressed for each zone are:

$$S_j^A = \frac{(\text{E4 \& E5 authorizations})_j - (\text{E4 \& E5 inventory})_j}{(\text{E4 \& E5 authorizations})_j} \qquad (2.2a)$$

$$S_j^B = \frac{(\text{E5 \& E6 authorizations})_j - (\text{E5 \& E6 inventory})_j}{(\text{E5 \& E6 authorizations})_j} \qquad (2.2b)$$

$$S_j^C = \frac{(\text{E6 \& E7 authorizations})_j - (\text{E6 \& E7 inventory})_j}{(\text{E6 \& E7 authorizations})_j} \qquad (2.2c)$$

The results of Equations 2.2a through 2.2c are shown in Appendix C, Table C-7. A positive value for (S_j^k) indicates a shortage of current inventory from billets authorized. Conversely, a negative value of (S_j^k) represents the percentage of excess in manning as compared to billets authorized.

C. FUTURE MANPOWER REQUIREMENTS

To gain an understanding of a rating's unique retention problems, the future manpower demands for that rating must be known. Logically, assignment of a high bonus multiple to ratings slated for either a reduction in manning or a gradual "phasing out" of the rating (i.e., the ASH rating) is not cost effective. A rating undergoing a significant increase in manning to accommodate a new weapons system design would be a likely candidate for higher bonus multiples.

To assess the future manpower demands for the 99 ratings, the Objective Force Model (OFM) was used. This computer model uses as its input, the billets authorized in a given fiscal year for all Navy ratings. Next, the OFM applies both historical and projected continuation rates to the input data for estimating future billet authorizations. The

OFM-derived future manpower demands are further adjusted by managerial and economic policies (i.e., expansion, reduction, or elimination of a rating).

The OFM data used in the RSI was developed from the FY-82 Enlisted Programmed Authorizations (billets authorized). The future billet authorizations were estimated for FY-86. In comparing billet authorizations for the two years, the percent growth (G_j) was computed for each rating. First, the present FY-82 authorizations (BAP_j) were subtracted from future FY-86 authorizations (BAF_j). The difference was then divided by present FY-82 authorizations (BAP_j) to yield the percentage growth in billets authorized (G_j) as shown in Equation 2.3:

$$G_j = \frac{BAF_j - BAP_j}{BAP_j} \qquad (2.3)$$

where:

$$j = \text{rating/AB,ABE,...,UT,YN}$$

The computed values for (G_j) from Equation 2.3 are listed in Appendix C, Table C-8.

D. SUMMARY OF MANPOWER REQUIREMENTS USED IN THE RSI

Having computed the manpower requirements components for the Retention Severity Index, each of the 99 ratings were ranked for each component. These rankings are listed in Appendix E, Tables E-4, E-5, and E-6 for zones A, B, and C respectively. The manpower requirements RSI components are:

(1) the size of each rating's current inventory (population size), (2) the shortage (excess) of current manning levels in each rating, and (3) the percent growth in estimated future billet authorizations. Each component was ranked from 1 for least severe for the impact of the loss of an experienced person in a rating to 99 for most severe. Therefore, Size is ranked from 1 for the rating with the largest inventory to 99 for the rating with the smallest inventory. Shortage ranges from 1 for the rating with the least percentage of manpower shortage to 99 for the rating with the largest percentage of manpower shortage. Growth is ranked from 1 for the rating with the smallest projected growth to 99 for the rating projected to grow the most.

III. MANPOWER COSTS

A. INTRODUCTION

The purpose of this chapter is to review the selection process for the manpower cost data used in developing the Retention Severity Index. The data source selected for manpower costs was the Enlisted Billet Cost Model (BCM) developed by Frankel (1983). In total, six manpower cost models were screened before the BCM was selected as the preferred model. The six cost models considered were: (1) the Navy Resource Model (NARM), (2) the Navy Composite Standard Rates (CSR), (3) the OASD Military Manpower Cost Reports, (4) the CNA Cost Model, (5) the Human Capital Model, and (6) the Enlisted Billet Cost Model (BCM).

These models were reviewed in the Literature Review Section of Chapter I with the exception of the BCM which is to be discussed in this chapter. The primary justification for not selecting the Navy Resource Model was that it was unable to distinguish between types or levels of manpower. The Navy Composite Standard Rates were rejected because these manpower costs did not include training costs. The Military Manpower Cost Reports were not chosen due to their lack of accounting for direct training costs. The CNA Cost Model was not selected because it estimated manpower service costs. The Human Capital Model uses the Billet Cost Model as its major input, but this model was designed to use

input from the version of BCM that preceded Frankel's BCM. Owing to the Human Capital Model's complexity and the extent to which Frankel's BCM cost data differs from that of the previous version of the BCM, time did not permit adapting the Human Capital Model to accept the current form of BCM data.

To the extent the Billet Cost Model [Frankel, 1983] captures the correct relative cost measures, it is not necessary that these cost measures identify the real cost of a billet. Moreover, it is essential to note that the Retention Severity Index uses manpower cost data to derive a relative ranking of 99 ratings, which is not a true expression of replacement cost or billet cost. The Billet Cost Model was chosen because it was compatible with the RSI's structure; it provided the most thorough cost estimation of billet costs compared to other available cost models; and, the BCM is widely accepted by SRB policy makers.

B. THE ENLISTED BILLET COST MODEL

The Enlisted Billet Cost Model (BCM), Frankel (1983), was developed as a means of estimating real (economic) billet costs for Navy ratings. The BCM cost data is calculated separately for each rating. Each rating's costs are further separated into costs for the top six paygrades (E4 through E9). In each table in the BCM, the costs are broken down into 14 "cost elements" as shown in Table 3.1.

Three total costs are given for each paygrade of a rating. The first is an Unadjusted Direct Cost. Unadjusted Direct

TABLE 3.1

Enlisted BCM Cost Elements

Basic Pay	SRB Payments
Proficiency Pay	Hazard Pay
Sea Pay	Variable Housing Allowance
Allowances	Retirement
Separation	Accession
"A" School	"C" School
Undistributed Costs	Unproductive Time

Costs are the estimated costs of a billet with no time lost from work (unproductive time). The second total cost is the Navy Billet Cost. Navy Billet Costs are a summation of the 14 cost elements. This total cost is the estimated cost to the Navy of having a specific billet filled the entire year. The third total cost is the Standard Manyear Cost.

In deriving the Standard Manyear Costs, the BCM first estimates the average civilian worker's number of hours worked per year. This is done through the assumption of a 40 hour work week and 52 weeks worked per year. That annual workload translates to 2,080 hours/year which is called the Standard Manyear. The Standard Manyear is subtracted from the estimated Navy Billet Manyear. From this difference in workload, a "productive Manhour Rate" is computed as the real cost of a work hour in a billet. The Standard Manyear is then multiplied by the Productive Manhour Rate to derive the Standard Manyear Cost of a billet. This is the total

cost that should be used in evaluating civilian contractor cost estimates since contractors generally use the Standard Manyear when estimating contract proposals or bids.

The 14 cost elements of the BCM were derived by Frankel (1983) as marginal costs such that the Navy Billet Cost represents the marginal cost of having a billet filled for a year. In economic terms, this is the estimated cost to the Navy of having one additional person of equal skill and experience. For example, if the Navy Billet Cost of a Boatswain's Mate Second Class (BM2) were $24,613, the Navy's cost of having the next BM2 would be $24,613. The 14 cost elements are briefly described in Table 3.2.

C. BCM ELEMENTS USED IN THE RSI

Since the Retention Severity Index is specifically tailored to fit the SRB Program, the Billet Cost Model's 14 elements were researched to identify those elements that best fit the RSI's intent. The only BCM cost element judged not to fit the intent of the RSI was the "SRB Payments" cost element. The primary reason for excluding SRB costs from the RSI cost data was to prevent an implicit "double counting" of these payments. Since the RSI is intended to aid in assigning SRB bonus multiples to the 99 ratings, including the SRB payments currently being received within each rating would pre-bias that assignment process.

The next selection process involved choosing the most appropriate total cost as computed by the BCM. The Unadjusted

TABLE 3.2

Definitions of BCM Cost Elements

Basic Pay: an enlisted servicemember's annual salary excluding any additional benefits. This cost element includes FICA payments as well.

SRB Payments: an estimate of current costs of the SRB Program as awarded to each rating.

Proficiency Pay: a per capita average of all proficiency pay allowed for each rating. Examples include payments to the nuclear community and to saturation divers.

Hazard Pay: the per capita average of all hazard pay allowed for each rating. Hazard pays include payments for hostile fire, flight deck duty, flight pay, etc.

Sea Pay: a per capita average of career sea duty payments for each rating in recognition of the arduous nature of duty aboard ship.

Variable Housing Allowance (VHA): the paygrade-specific per capita average of VHA payments made to each rating.

Allowances: payments such as Basic Allowance for Quarters (BAQ) and Basic Allowance for Subsistence (BAS). This cost element accounts for both the actual payments made and the costs of "in-kind" substitutes (i.e., BAQ is foregone when residing in government furnished quarters).

Retirement: the distribution to each rating and paygrade of the costs associated with retirement, disability retirement, and death.

Separation: a cost projection for enlisted personnel leaving the military during the fiscal year for which billet costs are being computed. Estimate of separation costs include moving expenses, separation pay, and unemployment benefits.

Accession: an amortization over the initial term of enlistment of all recruiting costs, initial clothing allowances, and recruit training costs. These costs are apportioned almost entirely to paygrades E5 and below.

"A" School: the value of "A" School (initial technical skill training) as amortized over the number of years remaining until retirement after completion of training.

TABLE 3.2 (CONT.)

"C" School: the amortized value of "C" School (advanced technical training).

Undistributed Costs: the value of costs not specifically identifiable by rating or paygrade. Examples of these costs include CHAMPUS, Commissary, Navy Exchange, and PCS costs.

Unproductive Time: the cost associated with "downtime" or the opportunity cost of lost productivity from a sailor's not working. Exclusive of on-the-job time lost during training, examples of unproductive time include individuals in a rating that spent time in transit between permanent duty stations, in a prisoner status, or as medical patients.

Direct Cost was rejected because it excluded the "Unproductive Time" cost element. It was decided that Unproductive Time was a BCM cost element essential to the cost of a billet evaluated by the RSI. The Standard Manyear Cost was the next total cost considered. It included all 14 cost elements, but the Standard Manyear Cost is based on the Standard Manyear (2080 hours per year spent working). Given the greater number of work hours required of Navy personnel, the Standard Manyear Cost was decidedly an understated total cost for the purpose of the Retention Severity Index. Consequently, the Navy Billet Cost was the total cost selected as the RSI's source of cost data.

D. COST DATA MODIFICATION

The Navy Billet Costs were initially adjusted to subtract the SRB Payments cost element. Further modification of the Navy Billet Costs was required to make the cost data compatible with the three SRB zones. Having subtracted the SRB Payments cost element, the Navy Billet Costs (hereafter referred to as "Billet Costs"), were still only identified by rating and paygrade. To fit the SRB zones' LOS constraints, the Billet Costs were modified by the percentage current inventories (Y_{ijk}) computed earlier by Equation 2.1. Since the Billet Costs were paygrade-specific, they were multiplied by the percentage current inventory (Y_{ijk}) for each paygrade in each rating. That process resulted in the Billet Costs for each paygrade in each rating's being expressed as a

Percentage Billet Cost (BC_{ijk}). Since BC is the Percentage Billet Cost for the i^{th} paygrade of the j^{th} rating in the k^{th} zone, a single cost (C_{jk}) was derived for rating (j) in the k^{th} zone by summing the product of BC and Y_{ijk} for each rating. This process is shown in Equation 3.1 as:

$$C_{jk} = \sum_{i=E4}^{E9} (BC_{ijk})(Y_{ijk}) \qquad (3.1)$$

Table 3.3 contains an example of Equation 3.1 computed for the Yeoman (YN) rating. The Billet Costs used in developing the RSI-specific billet cost estimates and Table 3.3 are listed in Appendix D, Table D-1. The zone-specific costs (C_{jk}) are listed in Appendix D, Tables D-2, D-3, and D-4 for zones A, B, and C respectively.

TABLE 3.3

Example of RSI Cost Computations

Using the Yeoman (YN) rating for illustration, the RSI Costs for zone A are computed using Equation 3.1 as follows:

--Refer to Appendix D, Table D-2 for the appropriate Billet Costs (BC_{ijk}).

--Refer to Appendix C, Table C-4 for the corresponding percentage current inventories (Y_{ijk}).

RATE	BILLET COST	CURRENT INVENTORY	PAYGRADE COST	
YN3	$18807	.6005	$11294	
YN2	$22201	.3806	8449	
YN1	$26092	.0184	490	
YNC	$31015	.0005	15	
YNCS	$35526	0	0	
YNCM	$41139	0	0	
		100%	$20238	(Total RSI Cost)

E. SUMMARY OF RSI COST DATA DEVELOPMENT

This chapter developed the RSI cost data for each rating such that each SRB zone would have its unique cost data. With Equation 3.1, a single cost figure was derived for each of the 99 ratings in zones A, B, and C. These summed costs were ranked for the 99 ratings in Appendix E, Tables E-4, E-5, and E-6 for zones A, B, and C respectively. A rank of 1 was assigned to the rating in each zone with the smallest cost. A rank of 99 was assigned to the rating in each zone with the largest cost.

TABLE 3.4

FY-82 Weighted Costs By Rating and Reenlistment Zones*

RATING	Weighted Costs Zone A	Zone B	Zone C
AB	0	0	0
ABE	20900	25000	28500
ABF	20000	23300	27600
ABH	19800	22900	26200
AC	23400	26500	28800
AD	21000	24500	27700
AE	21800	25800	28400
AF	0	0	0
AG	20600	24300	27500
AK	19800	22400	25700
AM	35100	0	35100
AME	21800	25200	27600
AMH	20400	23800	27200
AMS	20600	24100	27100
AO	20800	24600	27400
AQ	26900	29400	31200
AS	27200	27300	27700
ASE	21900	23600	24200
ASM	23500	25600	26200
AT	24400	27400	29300
AV	0	0	0
AW	23200	27300	30000
AX	25900	28300	30400
AZ	19400	22000	25800
BM	19900	23700	27200
BT	21500	25100	28700
BU	20500	23900	27700
CE	22000	25300	27200
CM	21400	24000	27500
CTA	22500	25000	28100

*From Equation 3.1

TABLE 3.4 (CONT.)

RATING	Zone A	Zone B	Zone C
CTI	21900	25500	27700
CTM	32700	33400	33600
CTO	22700	25400	28200
CTR	24000	26200	28300
CTT	31300	32700	32800
CU	0	0	0
DK	20200	24500	27700
DM	19500	22900	25900
DP	20400	23800	27200
DS	26200	32700	35900
DT	19500	22100	25800
EA	20300	24300	28000
EM	23300	27500	31600
EN	20100	24500	27900
EO	20700	24300	26400
EQ	0	0	0
ET	25000	28400	31000
EW	28300	31200	33200
FT	0	0	80600
FTB	25400	28500	31800
FTG	26400	29800	32400
FTM	27600	30900	32900
GM	0	0	81400
GMG	21000	25500	29000
GMM	22900	27700	30900
GMT	22300	26700	28800
GS	0	0	73200
GSE	24700	29000	32300
GSM	24300	28300	31100
HM	19600	22600	26200
HT	20500	24900	28200
IC	22000	26400	30100
IM	22200	26200	28800

TABLE 3.4 (CONT.)

RATING	Zone A	Zone B	Zone B
IS	23300	26100	28500
JO	19700	23200	25800
LI	19300	22800	25800
LN	23300	24300	26500
MA	24500	25300	27900
ML	20600	24700	26900
MM	22000	25500	30900
MN	25600	28600	30200
MR	20500	25600	28200
MS	20600	23100	26300
MT	24200	27700	30700
MU	25300	26400	28400
NC	24200	27800	29300
OM	22300	26400	28800
OS	22700	26900	30500
OT	24300	27800	29700
PC	18500	22500	25600
PH	21600	23200	25400
PI	0	0	0
PM	20700	23300	27400
PN	20300	24200	27700
PR	21600	24200	26700
QM	20300	24900	28900
RM	22300	25500	28500
RP	20000	23000	25700
SH	20400	24200	26900
SK	20200	24200	27100
SM	20700	24400	27900
ST	0	0	0
STG	23200	27200	30300
STS	29200	32400	35200
SW	20400	24500	28500
TD	24300	27200	29200

TABLE 3.4 (CONT.)

RATING	Zone A	Zone B	Zone C
TM	23300	27200	29500
UT	20600	24100	26800
YN	20200	23700	27000

IV. PRIORITY OF NAVY RATINGS

A. THE CONCEPT OF PRIORITY

Before the assessment of retention severity for Navy ratings was considered complete, each of the 99 ratings was prioritized. When assessing the priority of a rating, its relative importance to the Navy is the characteristic being evaluated. For the purpose of this thesis, a rating's priority was considered as its relative contribution in two aspects of the Navy's mission:

1. How much does the rating contribute to combat readiness for the Navy?
2. To what extent does the rating contribute to the Navy's role in deterring the national threat?

The process of prioritizing Navy ratings is admittedly a subjective one regardless of the methodology employed. The relative priority of the 99 ratings is derived using a procedure called the Delphi method: a panel of Navy experts is used to develop a concensus of opinion concerning the relative importance of each rating to the Navy.

B. THE DELPHI METHOD AS APPLIED TO PRIORITIZING NAVY RATINGS

A Delphi method [Pill, 1971] was used to garner information on the relative importance of Navy ratings. Since the Retention Severity Index (RSI) is intended to augment the SRB-related interactions of OP-132, OP-135, and OP-136, the

panel of experts should include Navy officers in these departments most closely associated with the SRB Program. However, time and operational constraints did not permit participation by those officers and another panel of experts was chosen from Naval officers on the faculty and staff of the U.S. Naval Postgraduate School. In selecting the experts, attention was focused on each expert's naval background and years of experience. This screening process resulted in a panel of experts highly diversified in professional training and experience.

The Delphi method used in the RSI was developed by Thomas (1981). Thomas' technique involved an iterative process wherein each expert was asked to assign a numerical "scale value" of importance to each of the 99 ratings. The rating scale used by the experts was anchored at 10 for the Musician (MU) rating and 90 for the Machinist's Mate (MM) rating. The range of the numerical scale permissible was restricted to 0 to 100. Thus, the largest permissible scale value for a rating was 100 with the smallest permissible scale value set at 0.

In round one of the Delphi method, each of the 'n' experts scored all 97 ratings other than the MU and MM ratings. The scale values from each expert were compared with the other experts' scale values for agreement. If there were no information (no agreement) among the 'n' experts, then their scale values for the ratings not in agreement could be seen as a

sample from a uniform distribution with mean 50 and variance 833 [Winkler, 1978].

In testing for agreement among the experts' scale values for a rating, two computations were required. First, the sample variance (S_j^2) was calculated for the $j^{\underline{th}}$ rating by using:

$$S_j^2 = \sum_{k=1}^{n} \frac{(X_{jk} - \bar{X}_j)^2}{n-1} \qquad (4.1)$$

where:

j = rating/AB,ABE,...,UT,YN

n = number of experts

$\bar{X}_j$ = the mean scale value for the $j^{\underline{th}}$ rating

X_{jk} = the $k^{\underline{th}}$ expert's scale value for the $j^{\underline{th}}$ rating

Next, the test statistic (A_j) was computed for the $j^{\underline{th}}$ rating. As the experts' scale values for a rating approach agreement, the value of the test statistic approaches zero. Each rating's test statistic was calculated as:

$$A_j = \frac{(n-1)\ S_j^2}{833} \qquad (4.2)$$

where:

n = number of experts

The test statistic was evaluated for agreement by its chi-square (χ^2) distribution with n-1 degrees of freedom. For example, if n = 10, the lower 5% critical value of the chi-square with 9 degrees of freedom is 3.33. Figure 4.1 graphically depicts the chi-square range for agreement. The chi-square distribution for A_j was interpreted as the critical value for agreement where the "range of agreement" for A_j is 0 to 3.33. Thus, a rating with a test statistic less than or equal to 3.33 was said to be in agreement. Each rating in agreement was assigned its mean scale value ($\bar{X}_j$). Those ratings for which A_j was greater than 3.33 were not in agreement and were reassessed in the second round.

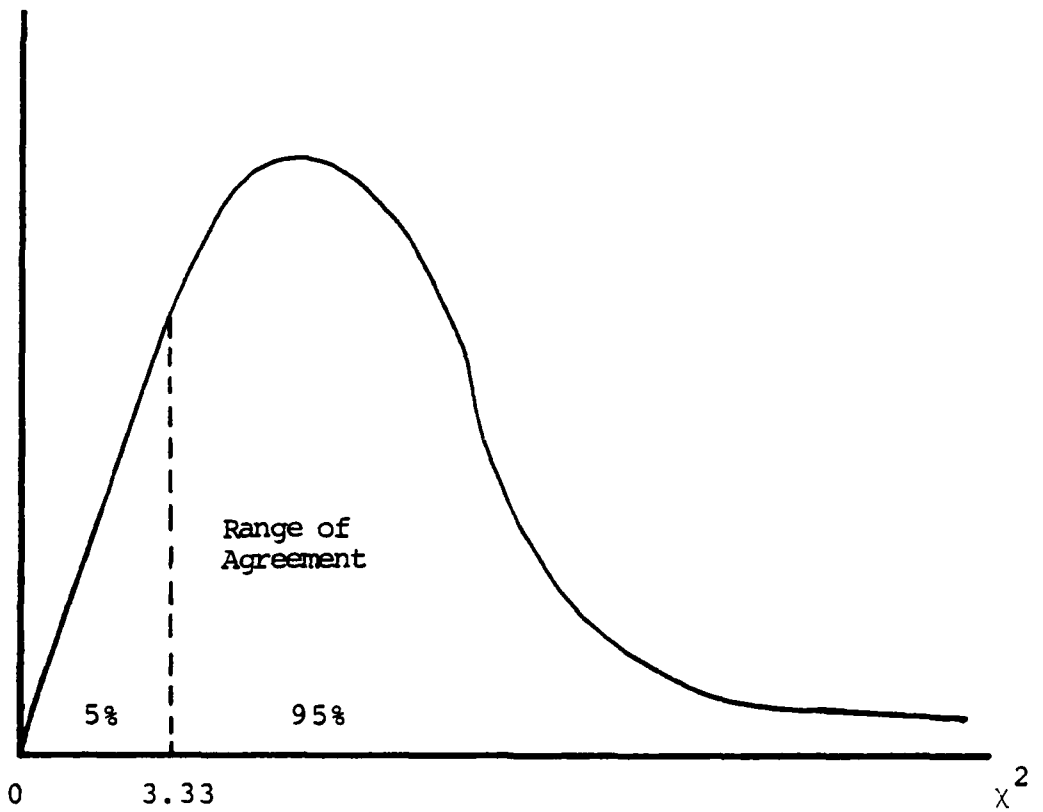

Figure 4.1 Chi-Square Range of Agreement

In the second round, the ratings found to be in agreement after the first round were assigned their respective mean scale values. Each expert was then asked to assign new scale values only to those ratings not in agreement after round one. These new scale values were evaluated for agreement using the same procedures used in round one. New values were calculated for S_j^2 and A_j for the $j^{\underline{th}}$ rating. The chi-square range of agreement criteria (0 to 3.33) was applied to these new values of A_j (the same as in round one).

After each iteration (round), the coefficient of concordance, as discussed by Kendall (1970), was calculated. If the value of the coefficient of concordance exceeded .95, no further iterations were required. Otherwise, the iterative process as detailed for round two was repeated for each rating until either agreement was achieved for each rating or the fourth iteration was reached. The ratings not in agreement after the fourth round were assigned their respective mean scale values ($\overline{X}_j$).

C. SUMMARY

The final scale values (priority values) are listed in Table 4.1. These priority values for the 99 ratings were ranked from 1 for the rating with the lowest priority value to 99 for the rating with the highest priority value. The rankings for zones A, B, and C are listed in Appendix E, Tables E-4, E-5, and E-6. Each reenlistment zone uses identical priority scale values and rankings.

TABLE 4.1

Priority Values for Navy Ratings

RATING	PRIORITY	RATING	PRIORITY	RATING	PRIORITY
AB	75	CTI	76	HT	80
ABE	79	CTM	74	IC	79
ABF	75	CTO	74	IM	70
ABH	75	CTR	75	IS	69
AC	90	CTT	75	JO	29
AD	81	CU	62	LI	39
AE	81	DK	76	LN	34
AF	80	DM	53	MA	24
AG	73	DP	75	ML	44
AK	68	DS	79	MM	90
AM	81	DT	54	MN	50
AME	76	EA	58	MR	77
AMH	76	EM	79	MS	65
AMS	76	EN	80	MT	83
AO	79	EO	53	MU	10
AQ	87	EQ	54	NC	39
AS	76	ET	86	OM	49
ASE	79	EW	90	OS	79
ASM	78	FT	87	OT	75
AT	84	FTB	92	PC	49
AV	84	FTG	80	PH	51
AW	90	FTM	87	PI	58
AX	83	GM	83	PM	47
AZ	71	GMG	77	PN	63
BM	69	GMM	82	PR	71
BT	80	GMT	81	QM	82
BU	62	GS	87	RM	87
CE	62	GSE	80	RP	15
CM	62	GSM	80	SH	64
CTA	65	HM	79	SK	72

TABLE 4.1 (CONT.)

RATING	PRIORITY
SM	74
ST	84
STG	81
STS	82
SW	63
TD	60
TM	79
UT	55
YN	60

V. DERIVATION OF THE RETENTION SEVERITY INDEX

A. RSI COMPONENTS

In the preceding chapters, the individual components (variables) selected as essential for expressing the relative retention severity for Navy ratings were developed. In total, five components were identified. These components are summarized in Table 5.1.

TABLE 5.1

Retention Severity Index Components

Component	Description
Shortage	% inventory shortage vs authorizations
Growth	% change in future billets authorized
Size	Current manpower inventory
Cost	Adjusted billet cost for a rating
Priority	A rating's importance to the Navy

Having identified the five essential components necessary to determine the severity of losing an experienced servicemember, the next step was to group the data by SRB zones. Listed in Appendix E, Tables E-1, E-2, and E-3 are the five components for each of the 99 ratings in zone A, B, and C, respectively. To make the data in Tables E-1, E-2, and E-3 easier to interpret, the data were standardized.

In standardizing the component data, each component was transformed to a standardized numerical scale using the formula:

$$z_{mj}^{k} = 50 \pm 10\left(\frac{x_{mj}^{k} - \mu_{x_{mj}^{k}}}{\sigma_{x_{mj}^{k}}}\right) \qquad (5.1)$$

where:

x_{mj}^{k} = basic data on mth RSI factor for the $j^{\underline{th}}$ rating in zone k

$\mu_{x_{mj}^{k}}$ = mean of x_{mj}^{k} over all ratings

$\sigma_{x_{mj}^{k}}$ = standard deviation of x_{mj}^{k} over all ratings

m = component/1,...,5

j = rating/AB,ABE,...,UT,YN

k = zone/A,B,C

For the components Growth, Storage, Cost, and Priority, the adjusted standard deviation of z_{mj}^{k} is added to the mean of 50. For the component, Size, the adjusted standard deviation is subtracted from the mean of 50. This placed all standardized component values on a scale where larger Z-values are indicative of more severe retention problems. Equation 5.1 was applied to all component values listed in Appendix E, Tables E-1, E-2, and E-3. The Z-values for these tables are shown in Appendix E, Tables E-7, E-8, and E-9, respectively.

The relationship of the RSI's five components to each other was analyzed to determine if all five components were

required to develop a Retention Severity Index. The method used to analyze the interrelationships of the candidate components was to inspect the rankings that would result from the individual factors (components) and to evaluate the similarity of these rankings. The results of rank-ordering the component data from zones A, B, and C are shown in Appendix E, Tables E-4, E-5, and E-6 for zones A, B, and C, respectively. Testing the five components for similarity was accomplished by computing the Pearson correlation coefficient for each component. These correlation coefficients are shown for each zone in Table 5.2.

Pearson correlation coefficients are interpreted such that a coefficient of 1.0 is the highest degree of correlation between two components (variables). A correlation coefficient greater than 0.70 would reflect a high degree of correlation or similarity between two components. As shown in Table 5.2, there was no high degree of correlation among the five RSI components. The highest correlation for each zone was between Cost and Priority with all correlation coefficients being less than 0.60. Hence, on this basis, no component could be dropped from the analysis without loss of information. Thus, each component was deemed essential to determining a rating's retention severity in zones A, B, and C.

B. A COMPOSITE INDEX

The intent of any expression of retention severity for Navy ratings is to provide a single usable index for each

TABLE 5.2

Pearson Correlation for Retention Severity Components

Pearson Correlation Coefficients From Zone A

	Shortage	Growth	Cost	Priority
Growth	-.046			
Cost	.165	.241		
Priority	-.179	.066	.257	
Size	-.171	.018	-.156	-.337

Pearson Correlation Coefficients From Zone B

	Shortage	Growth	Cost	Priority
Growth	.217			
Cost	.250	.291		
Priority	-.243	.066	.329	
Size	-.060	.031	-.313	-.317

Pearson Correlation Coefficients From Zone C

	Shortage	Growth	Cost	Priority
Growth	.086			
Cost	.355	.200		
Priority	.068	.066	.550	
Size	-.277	.015	-.138	-.215

rating's retention status relative to all other ratings that captures the information on multiple factors important to retaining experienced personnel. Having demonstrated, by means of the Pearson correlation test, that information on all five components were required to make a determination of retention severity, these components were combined into a composite index: the Retention Severity Index. To derive a single mathematical expression for the Retention Severity Index, the component indices were combined using the following multiattribute function:

$$RSI_j^k = \sum_{m=1}^{5} w_m \, z_{mj}^k \qquad (5.2)$$

where:

k = zone/A,B,C

j = rating/AB,ABE,...,UT,YN

m = component/1,...,5

w_m = relative weights of importance for component m

z_{mj}^k = standardized value for rating j of component m in zone k

Equation 5.2 was developed from the additive multiattribute utility model discussed by van Gigch (1978). To account for the relative importance of each of the five component indices, each index was weighted by its respective coefficient of importance value (w_m). The method by which the

relative importance of the m^{th} component index (w_m) was obtained is discussed in the following section.

C. MULTIVARIATE ANALYSIS OF THE RSI COMPONENT INDICES

The technique employed in analyzing the relative importance of each component index was adapted from the work of Edwards (1976). The process involved a single iteration wherein a panel of ten M.S. degree students in the Manpower, Personnel, and Training Analysis program at the U.S. Naval Postgraduate School were given a list of the five component indices. Each expert was asked to assign an importance value to each component index using a numerical scale of 1 to 10 with a score of 10 being the scale value of highest importance.

Each expert's responses were put into matrix E, where E_{mn} is the n^{th} expert's scale value for each component m. The experts' scale values were summed for each component index using:

$$C_m = \sum_{n=1}^{10} E_{mn} \qquad (5.3)$$

where:

m = components/1,...,5

n = experts/1,...,10

The weight (w) for the m^{th} component index was then computed using:

(5.4)

The results of Equation 5.4 are shown in Table 5.3.

TABLE 5.3

Weighting Factors of RSI Component Indices

RSI Component	Total Scale Values	Weight (w_m)
Shortage	41	.1175
Priority	82	.2350
Growth	80	.2292
Cost	84	.2407
Size	62	.1776
	349 (total)	1.0000 (total)

In Equation 5.2, the Retention Severity Index was expressed in the general form of the additive multiattribute utility model. Having developed the appropriate weights (w_m) for the five component indices, the RSI is complete. Applying Equation 5.2 to the Z-values for each zone given in Appendix E, Tables E-7, E-8, and E-9, results in the RSI values listed in Table 5.4.

D. APPLICATION OF THE FY-82 RSI RESULTS

Typically, a manpower model such as the Retention Severity Index would use input data from the current fiscal year to make predictions (estimates) for the following fiscal year. For example, FY-82 input data used in the RSI

TABLE 5.4

FY-82 Retention Severity Index Values by Reenlistment Zones

RATING	Zone A RSI Value	Rank	Zone B RSI Value	Rank	Zone C RSI Value	Rank
AB	42.5	6	39.6	3	40.7	4
ABE	50.9	57	51.2	57	51.0	61
ABF	49.9	46	50.0	45	49.8	47
ABH	49.7	43	49.7	41	49.6	42
AC	52.9	77	52.8	75	52.2	73
AD	50.1	48	50.7	53	47.9	28
AE	51.4	68	52.3	71	49.5	39
AF	45.3	9	42.3	6	43.4	6
AG	49.2	40	50.0	44	51.0	62
AK	48.4	34	48.4	31	48.1	29
AM	55.1	92	41.3	5	49.2	37
AME	53.1	79	53.7	83	52.6	78
AMH	51.9	72	51.6	62	49.7	45
AMS	49.2	41	49.9	42	48.8	34
AO	50.2	49	50.6	52	49.7	43
AQ	55.0	90	55.3	90	53.4	84
AS	54.5	85	55.1	89	51.9	70
ASE	55.8	93	55.9	94	51.9	71
ASM	48.1	31	48.2	30	44.0	8
AT	51.1	64	50.4	47	49.8	46
AV	46.1	13	43.1	8	44.2	9
AW	62.3	99	60.6	99	59.5	97
AX	54.7	88	54.9	86	53.5	85
AZ	48.8	36	49.3	35	48.5	33
BM	47.6	26	46.3	19	45.7	14
BT	46.9	22	46.5	20	47.9	27
BU	50.4	51	51.6	63	50.4	53
CE	50.2	50	51.3	58	50.0	49

*From Equation 5.2

TABLE 5.4 (Cont.)

RATING	Zone A RSI Value	Rank	Zone B RSI Value	Rank	Zone C RSI Value	Rank
CM	51.1	61	52.1	69	51.4	66
CTA	50.4	53	49.9	43	49.5	41
CTI	50.9	58	51.1	56	50.9	60
CTM	54.5	86	53.1	78	53.1	82
CTO	51.0	59	50.6	50	50.3	52
CTR	53.3	80	53.0	76	52.3	76
CTT	57.6	96	56.9	96	55.9	91
CU	40.8	3	37.9	2	39.0	2
DK	50.9	56	51.6	65	51.6	68
DM	45.8	11	46.3	18	45.8	16
DP	51.3	67	52.1	70	52.2	74
DS	53.9	82	54.9	85	55.2	89
DT	46.6	19	46.6	21	46.7	24
EA	47.9	29	49.4	39	48.1	30
EM	47.9	28	49.2	34	50.1	51
EN	49.7	44	50.9	55	50.7	57
EO	48.8	37	50.1	46	49.7	44
EQ	40.7	2	37.7	1	38.8	1
ET	46.5	18	48.5	32	50.0	50
EW	55.0	89	56.0	95	55.1	87
FT	46.9	23	44.0	9	60.7	98
FTB	55.9	94	55.7	91	56.1	92
FTG	54.5	84	55.8	92	55.0	86
FTM	55.9	95	55.9	93	56.4	93
GM	47.3	25	44.4	13	61.3	99
GMG	51.1	62	51.7	67	50.5	55
GMM	54.6	87	55.0	87	55.1	88
GMT	49.0	39	49.6	40	49.1	36
GS	45.9	12	43.0	7	58.3	94
GSE	59.6	98	59.4	98	59.4	96
GSM	58.7	97	59.3	97	58.8	95
HM	46.4	17	46.0	17	45.0	11

TABLE 5.4 (CONT.)

RATING	Zone A RSI Value	Rank	Zone B RSI Value	Rank	Zone C RSI Value	Rank
HT	49.5	42	50.6	51	49.5	40
IC	49.9	45	51.4	61	50.8	58
IM	52.4	75	53.5	81	51.7	69
IS	53.0	78	53.6	82	52.4	77
JO	43.9	7	44.3	12	43.9	7
LI	46.1	15	46.8	23	46.3	18
LN	46.1	14	45.7	15	45.1	12
MA	36.3	1	47.3	26	45.8	15
ML	48.4	33	49.3	37	48.4	32
MM	42.5	5	44.1	11	46.3	17
MN	48.6	35	48.1	28	46.6	22
MR	52.3	74	53.2	80	52.3	75
MS	45.7	10	45.1	14	44.3	10
MT	52.8	76	52.4	72	52.1	72
MU	41.4	4	41.4	4	39.7	3
NC	47.8	27	49.3	38	46.6	23
OM	50.6	55	51.4	60	50.4	54
OS	50.6	54	51.3	59	51.1	64
OT	53.5	81	54.0	84	52.9	80
PC	46.6	20	47.1	25	46.5	19
PH	46.7	21	47.4	27	46.6	21
PI	55.0	91	52.1	68	53.2	83
PM	48.0	30	49.3	36	48.2	31
PN	46.3	16	45.9	16	46.6	20
PR	51.6	69	51.6	66	50.8	59
QM	52.0	73	53.0	77	52.6	79
RM	48.9	38	49.1	33	47.2	26
RP	51.8	71	52.6	74	51.3	65
SH	47.1	24	47.0	24	45.5	13
SK	48.2	32	46.7	22	47.1	25
SM	50.4	52	50.6	49	50.7	56

TABLE 5.4 (CONT.)

RATING	Zone A RSI Value	Rank	Zone B RSI Value	Rank	Zone C RSI Value	Rank
ST	51.1	65	48.2	29	49.3	38
STG	51.3	66	53.1	79	52.9	81
STS	54.4	83	55.1	88	55.2	90
SW	51.0	60	52.5	73	51.5	67
TD	51.1	63	50.5	48	49.1	35
TM	51.6	70	51.6	64	51.1	63
UT	50.0	47	50.8	54	49.8	48
YN	44.7	8	44.1	10	42.8	5

would generate output for assisting in the FY-83 SRB bonus multiple assignment negotiations. The Retention Severity Index, as developed in this thesis, was not intended to predict SRB bonus multiple assignments. The RSI may be thought of as reflecting a composition of demand elements that enter into the SRB multiple determination. However, the SRB multiple determination includes as well supply elements such as cost effective concepts like bonus elasticities. To expect a high degree of correlation of the computed RSI values with bonus multiple assignments would be unwarranted.

A listing of the 99 ratings' SRB bonus multiple assignments for fiscal years 1982 and 1983 were obtained from OP-136 (SRB Manager). Each fiscal year's bonus multiple assignments were separated into SRB zones A, B, and C. The bonus multiples in each zone for the three fiscal years were then ranked as shown in Appendix F, Tables F-1 and F-2 for FY-82 and FY-83, respectively.

Table 5.5 shows the Pearson correlation coefficients for each zone (A, B, C) in each fiscal year (82 and 83). As was expected, the FY-82 RSI values derived in this thesis did not exhibit a strong correlation with the SRB bonus multiples for FY-82 and FY-83. Still, the RSI values for zone B showed a correlation greater than .5 for FY-82 and FY-83. That was an indication that one or more of the RSI components had been influential during the negotiation process for bonus multiple assignments. To verify that hypothesis, the SRB

bonus multiples were tested for correlation with the five RSI components individually.

TABLE 5.5

Correlation of SRB Bonus Multiples with RSI Values

(ZONE A)	SRB (82)	SRB (83)
RSI^A	.461	.409
(ZONE B)	SRB (82)	SRB (83)
RSI^B	.571	.551
(ZONE C)	SRB (82)	SRB (83)
RSI^C	.266	.411

Table 5.6 shows the Pearson correlation coefficients calculated for the five RSI components and the bonus multiple assignments. The correlation coefficients are listed by SRB zones (A, B, C). As indicated in Table 5.5, the FY-82 and FY-83 bonus multiples correlated with the RSI values from zone B. In Table 5.6, the RSI components from zone B that show the highest correlation are Cost and Priority. Cost is significantly higher in correlation with bonus multiples for zones A and B than the other RSI components. In FY-83, the Cost component is the most significant RSI component only for zone C.

TABLE 5.6

Correlation of SRB Bonus Multiples with RSI Components

ZONE A	Shortage	Growth	Cost	Priority	Size
SRB (82)	.301	.203	.610	.456	-.368
SRB (83)	.332	.127	.561	.490	-.319
ZONE B	**Shortage**	**Growth**	**Cost**	**Priority**	**Size**
SRB (82)	.183	.185	.650	.507	-.312
SRB (83)	.204	.215	.665	.473	-.301
ZONE C	**Shortage**	**Growth**	**Cost**	**Priority**	**Size**
SRB (82)	.394	-.121	.404	.412	-.198
SRB (83)	.442	.077	.567	.521	-.067

E. SUMMARY

In this chapter, the five RSI components were standardized to a numerical scale with mean 50 and standard deviation 10. Each component was ranked, then analyzed for correlation with the other four components. This correlation analysis indicated each component was required for developing a Retention Severity Index. The RSI values for each rating were analyzed for correlation with actual SRB multiples that were assigned for FY-82 and FY-83.

The two components exhibiting the highest degree of correlation were Cost and Priority, particularly for zone B data. The computed FY-82 RSI values for the 99 ratings were ranked using a scale of 1 for the least severe in terms of retention severity to 99 for the most severe. For zone A, the MA rating was ranked the lowest with the AW rating ranked the

highest. In zone B, the EQ rating was ranked least severe for retention and the AW rating was ranked most severe. Zone C rankings of RSI values showed the EQ rating to be least severe for retention and the GM rating the most severe rating for retention.

VI. SUMMARY AND RECOMMENDATIONS

A. SUMMARY

The purpose of this thesis was to develop a Retention Severity Index (RSI) for 99 Navy ratings. Retention of experienced personnel may be viewed as a function of two sets of fundamental factors: (1) the Navy's demand for experienced personnel and (2) the supply of reenlistees. The RSI focused on the demand factors since time and operational resources did not permit analysis of both the supply and demand issues.

A total of five factors (components) were identified as having a significant impact on retention severity among Navy ratings: (1) Shortage, (2) Growth, (3) Size, (4) Cost, and (5) Priority. The Retention Severity Index's intent was to assist OP-136 and OP-132 in assigning Selective Reenlistment Bonus (SRB) multiples. Therefore, the five RSI components were adjusted to be compatible with SRB reenlistment zones A, B, and C.

The Shortage component was derived for each SRB zone from FY-82 current manpower inventory data as compared to FY-82 billets authorized for each of the 99 ratings. Billets authorized are expressed only by paygrade while current inventories were available by paygrade and length of service. Therefore, the two dominant paygrades in each SRB zone were identified from the current inventory data. The dominant paygrade data for current inventories and billets authorized

were used to derive an expression of shortage in current manning levels for each rating.

The Growth component was derived from the FY-82 billets authorized data and the projected (FY-86) billets authorized as estimated by the POM-84 Objective Forces Model. Owing to the nature of the Growth component, it was not deemed essential to adjust the Growth data for each SRB zone.

The Size component was derived for each zone from the FY-82 current inventory data. This derivation process required dividing each rating's current manpower inventory into length of service (LOS) categories corresponding to zones A, B, and C.

The data source for the Cost component was the Enlisted Billet Cost Model (BCM) developed by Frankel (1983). Each of the 99 ratings' billet cost was adjusted for zones A, B, and C by the percentage current inventories in each zone. A summation of these proportioned billet costs for each paygrade in a rating resulted in a single cost that was representative of the current inventory for each rating in each zone.

The fifth component, Priority, was developed using a Delphi method for obtaining a concensus of opinion from a panel of Navy experts. In this iterative process, the experts assessed the importance of the 99 ratings relative to the Navy's missions.

The five RSI components were used as input data for an additive multiattribute model. Each component was weighted

by a weighting factor developed through a multivariate analysis of the relative contribution of each RSI component to retention severity among Navy ratings. The multiattribute RSI model yielded three sets of RSI values for the 99 ratings; one set for each SRB zone.

Actual SRB bonus multiple assignments for FY-82 and FY-83 were tested for correlation with the computed RSI values. A moderate correlation of the RSI values from zone B with the FY-82 and FY-83 zone B bonus multiples resulted, which indicated that one or more RSI component data were influential in current SRB bonus multiple negotiations between OP-132 and OP-136. A correlation analysis of SRB award levels with ranks of components as having the most significant correlation with the bonus multiples.

B. RECOMMENDATIONS FOR FURTHER STUDY

The Retention Severity Index is a useful tool for the SRB Manager (OP-136) and the Enlisted Community Managers (OP-132) to the extent that it expresses the relative impact of the Navy's retention requirements on each of the 99 ratings. The need still exists, however, for a cost effectiveness analysis of reenlistment incentives particularly reenlistment elasticities with respect to reenlistment bonuses. A type of cost effectiveness study was conducted by Butler et al. (1980) in which a computer model was developed specifically for aiding the SRB Manager allocate the current fiscal year's SRB budget and estimate future SRB budget

requirements. This model, B/REFT, initially was intended as a temporary means of budget forecasting for OP-136, but it has evolved as one of the primary tools for determining the SRB multiples each fiscal year.

Having derived a Retention Severity Index that reflects the Navy's demand for reenlistments, the next logical step would be to examine the feasibility of incorporating the RSI and B/REFT in a single model. That model's purpose would be to determine the optimum allocation of SRB funds given the Navy's need for experienced personnel and a cost effective analysis of achieving the desired manning levels.

APPENDIX A

GLOSSARY OF MANPOWER TERMS

Apprenticeship Rating: a term used to encompass enlisted personnel who do not possess a rating (i.e., personnel in paygrades E1, E2, and E3).

Billets Authorized: enlisted billets (occupations) for which funding has been provided and for which the quality (paygrade) mix has been authorized by the Chief of Naval Operations as a requirement to perform the billet functions.

Current Manpower Inventory: the total number of enlisted personnel in the Navy performing active duty regardless of their reimbursable status or chargeability to strength ceilings. Naval Reserve personnel performing active duty for training and retired Naval personnel recalled for special projects are excluded from this count.

Enlisted Programmed Authorizations (EPA): total Navy billets which are presently forecast to be written for each end-fiscal year.

Objective Force Model (OFM): a manpower model used to size and shape the career force to meet projected requirements. OFM uses long range hardware requirements to project mid and long range manpower demands. OFM produces an inventory distribution of billets authorized by paygrade and length of service for each rating. The model's principal input is the EPA. OFM forecasts three years in the future to provide stepping stones toward Objective Force manning of the 15 Battle Group Navy of the 1990's.

Rate: identifies enlisted personnel occupationally by paygrade. Within a rating, a rate reflects levels of aptitude, training, experience, knowledge, skills, and responsibilities. For example, the Boatswain's Mate rating is translated from paygrades E4 through E9 as Boatswain's Mate Third Class (BM3), Boatswain's Mate Second Class (BM2), Boatswain's Mate First Class (BM1), Chief Boatswain's Mate (BMC), Senior Chief Boatswain's Mate (BMCS), and Master Chief Boatswain's Mate (BMCM). Additionally, paygrades E1, E2, and E3 are rates: Airman Recruit (AR), Airman Apprentice (AA), and Airman (AN).

Rating: the occupation of a petty officer that requires job related aptitudes, knowledge, training, and skill. Examples of ratings are Boatswain's Mate (BM), Disbursing Clerk (DK), and Aviation Ordnanceman (AO). Navy ratings are comprised of only the top six paygrades (E4, E5, E6, E7, E8, E9).

Striker: enlisted personnel in the apprenticeship ratings who have received training at Naval schools or aboard ship in the duties of a particular rating and who are authorized to be specifically designated for advancement to that rating.

APPENDIX B: ENLISTED RATINGS

TABLE B-1

Enlisted Ratings Used in the Retention Severity Index

RATING ACRONYM	RATING NAME
AB	Aviation Boatswain's Mate
ABE	Aviation Boatswain's Mate (Launching and Recovery)
ABF	Aviation Boatswain's Mate (Fuels)
ABH	Aviation Boatswain's Mate (Aircraft Handling)
AC	Air Controlman
AD	Aviation Machinist's Mate
AE	Aviation Electrician's Mate
AF	Aircraft Maintenanceman
AG	Aerographer's Mate
AK	Aviation Storekeeper
AM	Aviation Structural Mechanic
AME	Aviation Structural Mechanic (Safety Equipment)
AMH	Aviation Structural Mechanic (Hydraulics)
AMS	Aviation Structural Mechanic (Structures)
AO	Aviation Ordnanceman
AQ	Aviation Fire Control Technician
AS	Aviation Support Equipment Technician
ASE	Aviation Support Equipment Technician (Electrical)
ASM	Aviation Support Equipment Technician (Mechanical)
AT	Aviation Electronics Technician
AV	Avionics Technician
AW	Aviation Antisubmarine Warfare Operator
AX	Aviation Antisubmarine Warfare Technician
AZ	Aviation Maintenance Administrationman
BM	Boatswain's Mate
BT	Boiler Technician
BU	Builder

TABLE B-1 (CONT.)

RATING ACRONYM	RATING NAME
CE	Construction Electrician
CM	Construction Mechanic
CTA	Communications Technician (Administrative)
CTI	Communications Technician (Interpretive)
CTM	Communications Technician (Maintenance)
CTO	Communications Technician (Communications)
CTR	Communications Technician (Collection)
CTT	Communications Technician (Technical)
CU	Constructionman
DK	Disbursing Clerk
DM	Illustrator Draftsman
DP	Data Processing Technician
DS	Data Systems Technician
DT	Dental Technician
EA	Engineering Aid
EM	Electrician's Mate
EN	Engineman
EO	Equipment Operator
EQ	Equipmentman
ET	Electronics Technician
EW	Electronic Warfare Technician
FT	Fire Control Technician
FTB	Fire Control Technician (Ballistic Missile Fire Control)
FTG	Fire Control Technician (Gun Fire Control)
FTM	Fire Control Technician (Surface Missile Fire Control)
GM	Gunner's Mate
GMG	Gunner's Mate (Guns)
GMM	Gunner's Mate (Missiles)
GMT	Gunner's Mate (Technician)
GS	Gas Turbine Systems Technician

TABLE B-1 (CONT.)

RATING ACRONYM	RATING NAME
GSE	Gas Turbine Systems Technician (Electrical)
GSM	Gas Turbine Systems Technician (Mechanical)
HM	Hospital Corpsman
HT	Hull Maintenance Technician
IC	Interior Communications Electrician
IM	Instrumentman
IS	Intelligence Specialist
JO	Journalist
LI	Lithographer
LN	Legalman
MA	Master-at-Arms
ML	Molder
MM	Machinist's Mate
MN	Mineman
MR	Machinery Repairman
MS	Mess Management Specialist
MT	Missile Technician
MU	Musician
NC	Navy Counselor
OM	Opticalman
OS	Operations Specialist
OT	Ocean Systems Technician
PC	Postal Clerk
PH	Photographer's Mate
PI	Precision Instrumentman
PM	Patternmaker
PN	Personnelman
PR	Aircrew Survival Equipmentman
QM	Quartermaster
RM	Radioman
RP	Religious Program Specialist

TABLE B-1 (CONT.)

RATING ACRONYM	RATING NAME
SH	Ship's Serviceman
SK	Storekeeper
SM	Signalman
ST	Sonar Technician
STG	Sonar Technician (Surface)
STS	Sonar Technician (Submarine)
SW	Steelworker
TD	Tradevman
TM	Torpedoman's Mate
UT	Utilitiesman
YN	Yeoman

TABLE B-2

Apprenticeship Enlisted Ratings

RATING ACRONYM	RATING NAME
AR	Airman Recruit
AA	Airman Apprentice
AN	Airman
CR	Constructionman Recruit
CA	Constructionman Apprentice
CN	Constructionman
DR	Dentalman Recruit
DA	Dentalman Apprentice
DN	Dentalman
FR	Fireman Recruit
FA	Fireman Apprentice
FN	Fireman
HR	Hospitalman Recruit
HA	Hospitalman Apprentice
HN	Hospitalman
SR	Seaman Recruit
SA	Seaman Apprentice
SN	Seaman

TABLE B-3

Senior Enlisted Ratings

RATING ACRONYM	RATING NAME
AB	Aviation Boatswain's Mate
AF	Aircraft Maintenanceman
AM	Aviation Structural Mechanic
AS	Aviation Support Equipment Technician
AV	Avionics Technician
CU	Constructionman
EM	Electrician's Mate
EQ	Equipmentman
FT	Fire Control Technician
GM	Gunner's Mate
GS	Gas Turbine Systems Technician
ML	Molder
PI	Precision Instrumentman
St	Sonar Technician
UT	Utilitiesman

APPENDIX C: MANPOWER REQUIREMENTS

TABLE C-1

FY-82 Current Manpower Inventories For Reenlistment Zone A

	Paygrades						
RATING	E4	E5	E6	E7	E8	E9	TOTAL
AB	0	0	0	0	0	0	0
ABE	436	246	0	1	0	0	683
ABF	463	107	4	0	0	0	574
ABH	932	227	2	0	0	0	1161
AC	421	591	9	1	0	0	1022
AD	2607	1242	10	0	1	0	3860
AE	1686	1092	9	1	0	0	2788
AF	0	0	0	0	0	0	0
AG	389	314	1	0	0	0	704
AK	1053	559	6	0	0	0	1618
AM	0	0	0	0	1	0	1
AME	564	330	3	0	0	0	897
AMH	1245	418	3	0	0	0	1666
AMS	2124	710	14	1	0	0	2849
AO	1190	783	15	0	0	0	1988
AQ	466	632	12	1	0	0	1111
AS	0	0	1	0	0	0	1
ASE	162	96	0	0	0	0	258
ASM	425	70	0	0	0	0	495
AT	1967	1912	49	2	0	0	3930
AV	0	0	0	0	0	0	0
AW	478	564	13	0	1	0	1056
AX	307	291	16	0	0	0	614
AZ	647	346	1	1	0	0	995
BM	2249	790	22	2	0	0	3063
BT	2399	1480	5	1	0	0	3885
BU	577	399	4	1	0	0	981
CE	229	191	1	0	0	0	421
CM	358	166	1	1	0	0	526
CTA	192	154	2	1	0	0	349

TABLE C-1 (CONT.)

RATING	E4	E5	E6	E7	E8	E9	TOTAL
CTI	165	148	2	0	0	0	315
CTM	530	394	11	0	0	0	935
CTO	381	202	1	0	0	0	584
CTR	312	186	0	0	0	0	498
CTT	339	284	3	1	0	0	627
CU	0	0	0	0	0	0	0
DK	550	292	0	0	0	0	842
DM	89	43	1	0	0	0	133
DP	973	673	12	0	0	0	1658
DS	666	799	34	0	0	0	1499
DT	782	257	0	2	0	0	1041
EA	72	60	0	0	0	0	132
EM	2788	2401	119	1	0	1	5310
EN	1893	910	8	2	1	0	2814
EO	464	214	1	0	0	0	679
EQ	0	0	0	0	0	0	0
ET	3267	4938	168	0	0	0	8373
EW	419	519	8	0	0	0	946
FT	0	0	0	0	0	0	0
FTB	174	297	6	0	0	0	477
FTG	580	890	56	1	0	0	1527
FTM	590	779	15	0	0	0	1384
GM	0	0	0	0	0	0	0
GMG	651	402	5	1	0	0	1059
GMM	249	217	3	0	0	0	469
GMT	364	276	4	0	0	0	644
GS	0	0	0	0	0	0	0
GSE	65	120	10	0	0	0	195
GSM	226	311	14	0	0	0	551
HM	4962	1929	53	7	0	0	6951
HT	2327	1414	34	2	0	1	3778
IC	1101	1250	88	2	0	0	2441
IM	76	58	3	1	0	0	138

TABLE C-1 (CONT.)

RATING	E4	E5	E6	E7	E8	E9	TOTAL
IS	168	245	10	2	1	0	426
JO	175	142	3	0	0	0	320
LI	134	68	1	0	0	0	203
LN	0	86	4	0	0	0	90
MA	0	36	10	2	0	0	48
ML	24	16	0	0	0	0	40
MM	5262	5474	570	1	0	1	11308
MN	110	50	0	0	0	0	160
MR	477	238	3	0	0	0	718
MS	3080	809	3	0	0	0	3892
MT	380	552	9	0	0	0	941
MU	78	37	28	1	0	0	144
NC	0	2	1	0	0	0	3
OM	52	27	0	0	0	0	79
OS	1749	1081	10	2	0	0	2842
OT	340	199	2	1	0	0	542
PC	306	54	1	0	0	0	361
PH	517	398	5	1	0	0	921
PI	0	0	0	0	0	0	0
PM	29	18	0	0	0	0	47
PN	1404	1249	31	1	1	0	2686
PR	402	246	1	1	0	0	650
QM	723	461	9	2	0	0	1195
RM	2875	2030	52	2	1	0	4960
RP	114	102	3	0	0	0	219
SH	1014	311	1	0	0	0	1326
SK	1422	958	12	3	1	0	2396
SM	497	311	4	0	0	0	812
ST	0	0	0	0	0	0	0
STG	685	1136	55	1	0	0	1877
STS	706	634	610	0	0	0	1950
SW	248	113	1	0	0	0	362
TD	411	338	2	0	0	0	751

TABLE C-1 (CONT.)

RATING	E4	E5	E6	E7	E8	E9	TOTAL
TM	733	553	8	0	0	0	1294
UT	262	142	1	0	0	0	405
YN	2479	1571	76	2	0	0	4128

Source: FY-82 Navy Military Personnel Statistics: Annual Report

TABLE C-2

FY-82 Current Manpower Inventories For Reenlistment Zone B

RATING	Paygrades E4	E5	E6	E7	E8	E9	TOTAL
AB	0	0	0	0	0	0	0
ABE	25	179	113	1	0	0	318
ABF	76	134	83	1	0	0	294
ABH	136	248	158	0	0	0	542
AC	32	236	281	3	0	0	552
AD	182	971	486	3	2	0	1644
AE	20	614	456	1	0	0	1091
AF	0	0	0	0	0	0	0
AG	11	117	115	0	0	0	243
AK	111	584	136	1	0	0	832
AM	0	0	0	0	0	0	0
AME	29	219	140	0	0	0	388
AMH	124	633	219	0	0	0	976
AMS	172	600	402	2	0	0	1176
AO	71	445	393	0	0	0	909
AQ	27	215	180	2	0	0	424
AS	0	0	35	1	0	0	36
ASE	16	79	0	0	0	0	95
ASM	51	148	0	0	0	0	199
AT	133	1023	837	10	0	0	2003
AV	0	0	0	0	0	0	0
AW	32	247	396	1	0	0	676
AX	15	135	144	4	0	0	298
AZ	90	321	100	2	0	0	513
BM	277	1128	598	5	2	0	2010
BT	172	979	689	6	0	0	1846
BU	19	189	75	5	0	0	288
CE	10	81	48	3	0	0	142
CM	23	107	17	1	0	0	148
CTA	11	155	73	0	0	0	239

TABLE C-2 (CONT.)

RATING	E4	E5	E6	E7	E8	E9	TOTAL
CTI	18	89	113	0	0	0	220
CTM	48	280	195	5	0	0	528
CTO	54	207	104	0	0	0	365
CTR	23	191	71	0	0	1	286
CTT	25	158	154	2	0	0	339
CU	0	0	0	0	0	0	0
DK	22	230	167	0	0	0	419
DM	9	50	23	2	0	0	84
DP	55	273	231	5	1	0	565
DS	21	233	354	7	0	0	615
DT	82	280	91	0	0	0	453
EA	1	15	12	0	0	0	28
EM	146	741	1010	26	0	1	1924
EN	84	527	453	2	2	0	1068
EO	16	143	36	0	0	0	195
EQ	0	0	0	0	0	0	0
ET	139	941	1727	22	0	1	2830
EW	28	76	148	12	0	0	264
FT	0	0	0	0	0	0	0
FTB	9	57	152	3	0	0	221
FTG	27	122	271	17	0	0	437
FTM	33	251	362	17	0	0	663
GM	0	0	0	0	0	0	0
GMG	51	297	268	2	0	0	618
GMM	9	134	128	1	0	0	272
GMT	30	116	195	3	0	0	344
GS	0	0	0	0	0	0	0
GSE	5	62	77	5	0	0	149
GSM	12	91	95	2	0	0	200
HM	415	1786	954	10	0	2	3167
HT	107	670	735	14	0	1	1527
IC	40	326	426	11	0	0	803
IM	3	31	31	1	0	0	66

TABLE C-2 (CONT.)

RATING	E4	E5	E6	E7	E8	E9	TOTAL
IS	14	72	70	0	0	0	156
JO	12	61	61	4	1	1	140
LI	9	50	25	1	0	0	85
LN	0	44	58	0	0	0	102
MA	0	136	110	3	1	0	250
ML	1	8	16	0	0	0	25
MM	697	1401	2096	82	1	1	4278
MN	5	69	30	0	0	0	104
MR	23	176	213	2	0	0	414
MS	608	1475	121	3	0	0	2207
MT	9	249	195	0	0	0	453
MU	23	54	38	5	1	0	121
NC	0	9	133	11	1	0	154
OM	2	23	26	0	0	0	51
OS	125	586	529	6	0	0	1246
OT	10	117	124	0	0	0	251
PC	44	85	29	1	0	0	159
PH	38	122	88	2	0	0	250
PI	0	0	0	0	0	0	0
PM	1	7	3	0	0	0	11
PN	64	551	796	17	3	0	1431
PR	26	236	80	0	0	0	342
QM	47	234	250	9	1	0	541
RM	175	1261	786	2	0	0	2224
RP	9	39	35	0	0	0	83
SH	112	541	191	3	0	0	847
SK	110	904	777	14	0	0	1805
SM	50	247	175	0	0	0	472
ST	0	0	0	0	0	0	0
STG	32	178	275	20	0	0	505
STS	28	135	339	25	0	0	527
SW	9	39	33	0	0	0	81
TD	19	266	209	1	0	0	495

TABLE C-2 (CONT.)

RATING	E4	E5	E6	E7	E8	E9	TOTAL
TM	49	306	332	3	0	0	690
UT	12	128	27	3	0	0	170
YM	141	1124	878	20	0	2	2165

Source: FY-82 Navy Military Personnel Statistics: Annual Report

TABLE C-3

FY-82 Current Manpower Inventories For Reenlistment Zone C

RATING	Paygrades E4	E5	E6	E7	E8	E9	TOTAL
AB	0	0	0	0	0	0	0
ABE	2	23	101	59	0	0	185
ABF	3	35	80	71	0	0	189
ABH	13	45	227	33	0	0	318
AC	1	22	241	64	0	0	328
AD	19	233	1037	225	14	0	1528
AE	7	105	764	165	7	0	1048
AF	0	0	0	0	0	0	0
AG	2	11	16	26	0	0	55
AK	16	133	313	56	0	0	518
AM	0	0	0	0	3	0	3
AME	4	34	215	27	0	0	280
AMH	13	155	514	153	0	0	835
AMS	20	124	557	148	0	0	849
AO	3	63	503	69	1	0	639
AQ	2	51	267	47	4	0	371
AS	0	0	184	31	0	0	215
ASE	1	31	0	0	0	0	32
ASM	9	90	0	0	0	0	99
AT	15	177	806	174	4	0	1176
AV	0	0	0	0	0	0	0
AW	2	11	238	85	1	0	337
AX	1	25	132	59	1	0	218
AZ	8	83	275	28	0	0	394
BM	31	234	843	234	7	0	1349
BT	18	110	437	242	2	1	810
BU	1	29	195	46	3	0	274
CE	2	35	83	13	0	0	133
CM	1	38	82	11	0	0	132
CTA	0	12	94	40	1	0	147

TABLE C-3 (CONT.)

RATING	E4	E5	E6	E7	E8	E9	TOTAL
CTI	1	9	83	22	0	0	115
CTM	4	13	96	22	0	0	135
CTO	5	17	139	35	0	0	196
CTR	1	19	145	32	0	0	197
CTT	1	9	129	33	0	0	172
CU	0	0	0	0	0	0	0
DK	2	27	161	18	2	0	210
DM	0	9	35	6	0	0	50
DP	2	32	202	68	0	0	304
DS	4	20	148	42	1	0	215
DT	4	48	160	40	1	0	253
EA	0	1	29	8	0	0	38
EM	17	69	488	349	16	0	939
EN	10	72	468	115	3	0	668
EO	5	46	69	7	0	0	127
EQ	0	0	0	0	0	0	0
ET	9	59	797	336	8	0	1209
EW	0	17	72	56	0	0	145
FT	0	0	0	0	5	0	5
FTB	0	1	30	47	0	0	78
FTG	2	16	110	146	0	0	274
FTM	2	19	94	76	0	0	191
GM	0	0	0	0	2	0	2
GMG	6	21	390	87	0	0	504
GMM	2	13	72	49	0	0	136
GMT	1	9	152	23	0	0	185
GS	0	0	0	0	3	0	3
GSE	0	3	49	35	0	0	87
GSM	4	6	62	38	0	0	110
HM	28	249	1381	483	7	1	2149
HT	9	99	664	333	6	1	1112
IC	6	43	282	189	2	0	522
IM	1	5	55	17	0	0	78

TABLE C-3 (CONT.)

RATING	E4	E5	E6	E7	E8	E9	TOTAL
IS	0	14	105	17	0	0	136
JO	0	12	64	24	0	0	100
LI	1	13	33	9	0	0	56
LN	0	4	52	23	0	0	79
MA	0	30	315	48	1	0	394
ML	0	3	16	6	0	0	25
MM	30	140	1080	809	38	1	2098
MN	0	16	63	15	0	0	94
MR	2	33	182	50	1	0	268
MS	83	737	627	69	2	0	1518
MT	1	10	165	58	0	0	234
MU	5	39	75	14	3	1	137
NC	0	1	265	109	4	2	381
OM	0	2	32	8	0	0	42
OS	12	76	413	176	10	0	687
OT	0	10	135	28	0	0	173
PC	7	37	80	7	0	0	131
PH	1	13	127	22	0	0	163
PI	0	0	0	0	0	0	0
PM	0	2	15	5	0	0	22
PN	12	53	406	295	6	1	773
PR	5	47	153	19	0	1	225
QM	9	50	200	155	2	0	416
RM	19	191	1216	233	3	0	1662
RP	0	14	60	21	0	0	95
SH	33	225	394	81	4	0	737
SK	16	169	579	243	2	0	1009
SM	5	28	172	45	0	0	250
ST	0	0	0	0	0	0	0
STG	3	8	131	86	0	0	228
STS	1	6	95	85	8	0	195
SW	1	8	56	22	1	0	88
TD	3	28	269	35	2	0	337

TABLE C-3 (CONT.)

RATING	E4	E5	E6	E7	E8	E9	TOTAL
TM	8	20	327	60	0	0	415
UT	0	44	83	14	0	1	142
YM	16	175	1017	360	10	0	1578

Source: FY-82 Navy Military Personnel Statistics: Annual Report

TABLE C-4

FY-82 Distribution of Current Manpower Inventories in Zone A*

RATING	Paygrades E4	E5	E6	E7	E8	E9
AB	0.0	0.0	0.0	0.0	0.0	0
ABE	63.8	36.0	0.0	0.1	0.0	0
ABF	80.7	18.6	0.7	0.0	0.0	0
ABH	80.3	19.6	0.2	0.0	0.0	0
AC	41.2	57.8	0.9	0.1	0.0	0
AD	67.5	32.2	0.3	0.0	0.0	0
AE	60.5	39.2	0.3	0.0	0.0	0
AF	0.0	0.0	0.0	0.0	0.0	0
AG	55.3	44.6	0.1	0.0	0.0	0
AK	65.1	34.5	0.4	0.0	0.0	0
AM	0.0	0.0	0.0	0.0	100.0	0
AME	62.9	36.8	0.3	0.0	0.0	0
AMH	74.7	25.1	0.2	0.0	0.0	0
AMS	74.6	24.9	0.5	0.0	0.0	0
AO	59.9	39.4	0.8	0.0	0.0	0
AQ	41.9	56.9	1.1	0.1	0.0	0
AS	0.0	0.0	100.0	0.0	0.0	0
ASE	62.8	37.2	0.0	0.0	0.0	0
ASM	85.9	14.1	0.0	0.0	0.0	0
AT	50.1	48.7	1.2	0.1	0.0	0
AV	0.0	0.0	0.0	0.0	0.0	0
AW	45.3	53.4	1.2	0.0	0.1	0
AX	50.0	47.4	2.6	0.0	0.0	0
AZ	65.0	34.8	0.1	0.1	0.0	0
BM	73.4	25.8	0.7	0.1	0.0	0
BT	61.8	38.1	0.1	0.0	0.0	0
BU	58.8	40.7	0.4	0.1	0.0	0
CE	54.4	45.4	0.2	0.0	0.0	0
CM	68.1	31.6	0.2	0.2	0.0	0
CTA	55.0	44.1	0.6	0.3	0.0	0

*From Equation 2.1

AD-A132 875 RETENTION SEVERITY IN THE NAVY: A COMPOSITE INDEX(U) 2/2
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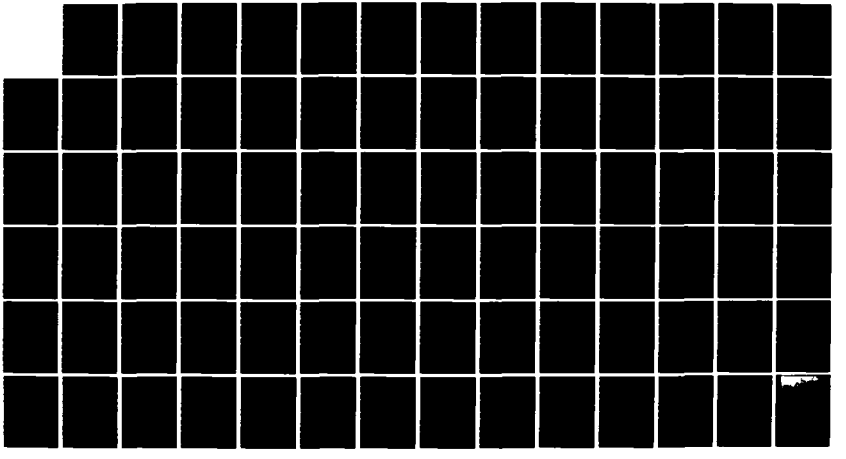

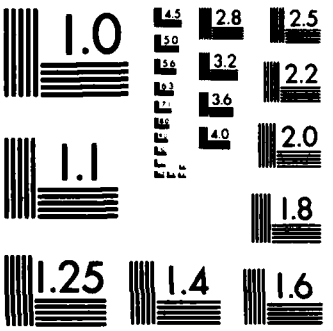
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TABLE C-4 (CONT.)

RATING	E4	E5	E6	E7	E8	E9
CTI	52.4	47.0	0.6	0.0	0.0	0
CTM	56.7	42.1	1.2	0.0	0.0	0
CTO	65.2	34.6	0.2	0.0	0.0	0
CTR	62.7	37.3	0.0	0.0	0.0	0
CTT	54.1	45.3	0.5	0.2	0.0	0
CU	0.0	0.0	0.0	0.0	0.0	0
DK	65.3	34.7	0.0	0.0	0.0	0
DM	66.9	32.3	0.8	0.0	0.0	0
DP	58.7	40.6	0.7	0.0	0.0	0
DS	44.4	53.3	2.3	0.0	0.0	0
DT	75.1	24.7	0.0	0.2	0.0	0
EA	54.5	45.5	0.0	0.0	0.0	0
EM	52.5	45.2	2.2	0.0	0.0	0
EN	67.3	32.3	0.3	0.1	0.0	0
EO	68.3	31.5	0.1	0.0	0.0	0
EQ	0.0	0.0	0.0	0.0	0.0	0
ET	39.0	59.0	2.0	0.0	0.0	0
EW	44.3	54.9	0.8	0.0	0.0	0
FT	0.0	0.0	0.0	0.0	0.0	0
FTB	36.5	62.3	1.3	0.0	0.0	0
FTG	38.0	58.3	3.7	0.1	0.0	0
FTM	42.6	56.3	1.1	0.0	0.0	0
GM	0.0	0.0	0.0	0.0	0.0	0
GMG	61.5	38.0	0.5	0.1	0.0	0
GMM	53.1	46.3	0.6	0.0	0.0	0
GMT	56.5	42.9	0.6	0.0	0.0	0
GS	0.0	0.0	0.0	0.0	0.0	0
GSE	33.3	61.5	5.1	0.0	0.0	0
GSM	41.0	56.4	2.5	0.0	0.0	0
HM	71.4	27.8	0.8	0.1	0.0	0
HT	61.6	37.4	0.9	0.1	0.0	0
IC	45.1	51.2	3.6	0.1	0.0	0
IM	55.1	42.0	2.2	0.7	0.0	0

TABLE C-4 (CONT.)

RATING	E4	E5	E6	E7	E8	E9
IS	39.4	57.5	2.3	0.5	0.2	0
JO	54.7	44.4	0.9	0.0	0.0	0
LI	66.0	33.5	0.5	0.0	0.0	0
LN	0.0	95.6	4.4	0.0	0.0	0
MA	0.0	75.0	20.8	4.2	0.0	0
ML	60.0	40.0	0.0	0.0	0.0	0
MM	46.5	48.4	5.0	0.0	0.0	0
MN	68.7	31.2	0.0	0.0	0.0	0
MR	66.4	33.1	0.4	0.0	0.0	0
MS	79.1	20.8	0.1	0.0	0.0	0
MT	40.4	58.7	1.0	0.0	0.0	0
MU	54.2	25.7	19.4	0.7	0.0	0
NC	0.0	66.7	33.3	0.0	0.0	0
OM	65.8	34.2	0.0	0.0	0.0	0
OS	61.5	38.0	0.4	0.1	0.0	0
OT	62.7	36.7	0.4	0.2	0.0	0
PC	84.8	15.0	0.3	0.0	0.0	0
PH	56.1	43.2	0.5	0.1	0.0	0
PI	0.0	0.0	0.0	0.0	0.0	0
PM	61.7	38.3	0.0	0.0	0.0	0
PN	52.3	46.5	1.2	0.0	0.0	0
PR	61.8	37.8	0.2	0.2	0.0	0
QM	60.5	38.6	0.8	0.2	0.0	0
RM	58.0	40.9	1.0	0.0	0.0	0
RP	52.1	46.6	1.4	0.0	0.0	0
SH	76.5	23.5	0.1	0.0	0.0	0
SK	59.3	40.0	0.5	0.1	0.0	0
SM	61.2	38.3	0.5	0.0	0.0	0
ST	0.0	0.0	0.0	0.0	0.0	0
STG	36.5	60.5	2.9	0.1	0.0	0
STS	36.2	32.5	31.3	0.0	0.0	0
SW	68.5	31.2	0.3	0.0	0.0	0
TD	54.7	45.0	0.3	0.0	0.0	0

TABLE C-4 (CONT.)

RATING	E4	E5	E6	E7	E8	E9
TM	56.6	42.7	0.6	0.0	0.0	0
UT	64.7	35.1	0.2	0.0	0.0	0
YM	60.1	38.1	1.8	0.0	0.0	0

TABLE C-5

FY-82 Distribution of Current Manpower Inventories in Zone B*

RATING	Paygrades E4	E5	E6	E7	E8	E9
AB	0.0	0.0	0.0	0.0	0.0	0.0
ABE	7.9	56.3	35.5	0.3	0.0	0.0
ABF	25.9	45.6	28.2	0.3	0.0	0.0
ABH	25.1	45.8	29.2	0.0	0.0	0.0
AC	5.8	42.8	50.9	0.5	0.0	0.0
AD	11.1	59.1	29.6	0.2	0.1	0.0
AE	1.8	56.3	41.8	0.1	0.0	0.0
AF	0.0	0.0	0.0	0.0	0.0	0.0
AG	4.5	48.1	47.3	0.0	0.0	0.0
AK	13.3	70.2	16.3	0.1	0.0	0.0
AM	0.0	0.0	0.0	0.0	0.0	0.0
AME	7.5	56.4	36.1	0.0	0.0	0.0
AMH	12.7	64.9	22.4	0.0	0.0	0.0
AMS	14.6	51.0	34.2	0.2	0.0	0.0
AO	7.8	49.0	43.2	0.0	0.0	0.0
AQ	6.4	50.7	42.5	0.5	0.0	0.0
AS	0.0	0.0	97.2	2.8	0.0	0.0
ASE	16.8	83.2	0.0	0.0	0.0	0.0
ASM	25.6	74.4	0.0	0.0	0.0	0.0
AT	6.6	51.1	41.8	0.5	0.0	0.0
AV	0.0	0.0	0.0	0.0	0.0	0.0
AW	4.7	36.5	58.6	0.1	0.0	0.0
AX	5.0	45.3	48.3	1.3	0.0	0.0
AZ	17.5	62.6	19.5	0.4	0.0	0.0
BM	13.8	56.1	29.8	0.2	0.1	0.0
BT	9.3	53.0	37.3	0.3	0.0	0.0
BU	6.6	65.6	26.0	1.7	0.0	0.0
CE	7.0	57.0	33.8	2.1	0.0	0.0
CM	15.5	72.3	11.5	0.7	0.0	0.0
CTA	4.6	64.9	30.5	0.0	0.0	0.0

*From Equation 2.1

TABLE C-5 (CONT.)

RATING	E4	E5	E6	E7	E8	E9
CTI	8.2	40.5	51.4	0.0	0.0	0.0
CTM	9.1	53.0	36.9	0.9	0.0	0.0
CTO	14.8	56.7	28.5	0.0	0.0	0.0
CTR	8.0	66.8	24.8	0.0	0.0	0.3
CTT	7.4	46.6	45.4	0.6	0.0	0.0
CU	0.0	0.0	0.0	0.0	0.0	0.0
DK	5.3	54.9	39.9	0.0	0.0	0.0
DM	10.7	59.5	27.4	2.4	0.0	0.0
DP	9.7	48.3	40.9	0.9	0.2	0.0
DS	3.4	37.9	57.6	1.1	0.0	0.0
DT	18.1	61.8	20.1	0.0	0.0	0.0
EA	3.6	53.6	42.9	0.0	0.0	0.0
EM	7.6	38.5	52.5	1.4	0.0	0.1
EN	7.9	49.3	42.4	0.2	0.2	0.0
EO	8.2	73.3	18.5	0.0	0.0	0.0
EQ	0.0	0.0	0.0	0.0	0.0	0.0
ET	4.9	33.3	61.0	0.8	0.0	0.0
EW	10.6	28.8	56.1	4.5	0.0	0.0
FT	0.0	0.0	0.0	0.0	0.0	0.0
FTB	4.1	25.8	68.8	1.4	0.0	0.0
FTG	6.2	27.9	62.0	3.9	0.0	0.0
FTM	5.0	37.9	54.6	2.6	0.0	0.0
GM	0.0	0.0	0.0	0.0	0.0	0.0
GMG	8.3	48.1	43.4	0.3	0.0	0.0
GMM	3.3	49.3	47.1	0.4	0.0	0.0
GMT	8.7	33.7	56.7	0.9	0.0	0.0
GS	0.0	0.0	0.0	0.0	0.0	0.0
GSE	3.4	41.6	51.7	3.4	0.0	0.0
GSM	6.0	45.5	47.5	1.0	0.0	0.0
HM	13.1	56.4	30.1	0.3	0.0	0.1
HT	7.0	43.9	48.1	0.9	0.0	0.1
IC	5.0	40.6	53.1	1.4	0.0	0.0
IM	4.5	47.0	47.0	1.5	0.0	0.0

Table C-5 (CONT.)

RATING	E4	E5	E6	E7	E8	E9
IS	9.0	46.2	44.9	0.0	0.0	0.0
JO	8.6	43.6	43.6	2.9	0.7	0.7
LI	10.6	58.8	29.4	1.2	0.0	0.0
LN	0.0	43.1	56.9	0.0	0.0	0.0
MA	0.0	54.4	44.0	1.2	0.4	0.0
ML	4.0	32.0	64.0	0.0	0.0	0.0
MM	16.3	32.7	49.0	1.9	0.0	0.0
MN	4.8	66.3	28.8	0.0	0.0	0.0
MR	5.6	42.5	51.4	0.5	0.0	0.0
MS	27.5	66.8	5.5	0.1	0.0	0.0
MT	2.0	55.0	43.0	0.0	0.0	0.0
MU	19.0	44.6	31.4	4.1	0.8	0.0
NC	0.0	5.8	86.4	7.1	0.6	0.0
OM	3.9	45.1	51.0	0.0	0.0	0.0
OS	10.0	47.0	42.5	0.5	0.0	0.0
OT	4.0	46.6	49.4	0.0	0.0	0.0
PC	27.7	53.5	18.2	0.6	0.0	0.0
PH	15.2	48.8	35.2	0.8	0.0	0.0
PI	0.0	0.0	0.0	0.0	0.0	0.0
PM	9.1	63.6	27.3	0.0	0.0	0.0
PN	4.5	38.5	55.6	1.2	0.2	0.0
PR	7.6	69.0	23.4	0.0	0.0	0.0
QM	8.7	43.3	46.2	1.7	0.2	0.0
RM	7.9	56.7	35.3	0.1	0.0	0.0
RP	10.8	47.0	42.2	0.0	0.0	0.0
SH	13.2	63.9	22.6	0.4	0.0	0.0
SK	6.1	50.1	43.0	0.8	0.0	0.0
SM	10.6	52.3	37.1	0.0	0.0	0.0
ST	0.0	0.0	0.0	0.0	0.0	0.0
STG	6.3	35.2	54.5	4.0	0.0	0.0
STS	5.3	25.6	64.3	4.7	0.0	0.0
SW	11.1	48.1	40.7	0.0	0.0	0.0
TD	3.8	53.7	42.2	0.2	0.0	0.0

TABLE C-5 (CONT.)

RATING	E4	E5	E6	E7	E8	E9
TM	7.1	44.3	48.1	0.4	0.0	0.0
UT	7.1	75.3	15.9	1.8	0.0	0.0
YM	6.5	51.9	40.6	0.9	0.0	0.1

TABLE C-6

FY-82 Distribution of Current Manpower Inventories In Zone C*

RATING	Paygrades E4	E5	E6	E7	E8	E9
AB	0.0	0.0	0.0	0.0	0.0	0.0
ABE	1.1	12.4	54.6	31.9	0.0	0.0
ABF	1.6	18.5	42.3	37.6	0.0	0.0
ABH	4.1	14.2	71.4	10.4	0.0	0.0
AC	0.3	6.7	73.5	19.5	0.0	0.0
AD	1.2	15.2	67.9	14.7	0.9	0.9
AE	0.7	10.0	72.9	15.7	0.7	0.7
AF	0.0	0.0	0.0	0.0	0.0	0.0
AG	3.6	20.0	29.1	47.3	0.0	0.0
AK	3.1	25.7	60.4	10.8	0.0	0.0
AM	0.0	0.0	0.0	0.0	100.0	100.0
AME	1.4	12.1	76.8	9.6	0.0	0.0
AMH	1.6	18.6	61.6	18.3	0.0	0.0
AMS	2.4	14.6	65.6	17.4	0.0	0.0
AO	0.5	9.9	78.7	10.8	0.2	0.2
AQ	0.5	13.7	72.0	12.7	1.1	1.1
AS	0.0	0.0	85.6	14.4	0.0	0.0
ASE	3.1	96.9	0.0	0.0	0.0	0.0
ASM	9.1	90.9	0.0	0.0	0.0	0.0
AT	1.3	15.1	68.5	14.8	0.3	0.3
AV	0.0	0.0	0.0	0.0	0.0	0.0
AW	0.6	3.3	70.6	25.2	0.3	0.3
AX	0.5	11.5	60.6	27.1	0.5	0.5
AZ	2.0	21.1	69.8	7.1	0.0	0.0
BM	2.3	17.3	62.5	17.3	0.5	0.5
BT	2.2	13.6	54.0	29.9	0.2	0.2
BU	0.4	10.6	71.2	16.8	1.1	1.1
CE	1.5	26.3	62.4	9.8	0.0	0.0
CM	0.8	28.8	62.1	8.3	0.0	0.0
CTA	0.0	8.2	63.9	27.2	0.7	0.7

*From Equation 2.1

TABLE C-6 (CONT.)

RATING	E4	E5	E6	E7	E8	E9
CTI	0.9	7.8	72.2	19.1	0.0	0.0
CTM	3.0	9.6	71.1	16.3	0.0	0.0
CTO	2.6	8.7	70.9	17.9	0.0	0.0
CTR	0.5	9.6	73.6	16.2	0.0	0.0
CTT	0.6	5.2	75.0	19.2	0.0	0.0
CU	0.0	0.0	0.0	0.0	0.0	0.0
DK	1.0	12.9	76.7	8.6	1.0	1.0
DM	0.0	18.0	70.0	12.0	0.0	0.0
DP	0.7	9.3	66.4	22.4	0.0	0.0
DS	1.9	9.3	68.8	19.5	0.5	0.5
DT	1.6	19.0	63.2	15.8	0.4	0.4
EA	0.0	2.6	76.3	21.1	0.0	0.0
EM	1.8	7.3	52.0	37.2	1.7	1.7
EN	1.5	10.8	70.1	17.2	0.4	0.4
EO	3.9	36.2	54.3	5.5	0.0	0.0
EQ	0.0	0.0	0.0	0.0	0.0	0.0
ET	0.7	4.9	65.9	27.8	0.7	0.7
EW	0.0	11.7	49.7	38.6	0.0	0.0
FT	0.0	0.0	0.0	0.0	100.0	100.0
FTB	0.0	1.3	38.5	60.3	0.0	0.0
FTG	0.7	5.8	40.1	53.3	0.0	0.0
FTM	1.0	9.9	49.2	39.8	0.0	0.0
GM	0.0	0.0	0.0	0.0	100.0	100.0
GMG	1.2	4.2	77.4	17.3	0.0	0.0
GMM	1.5	9.6	52.9	36.0	0.0	0.0
GMT	0.5	4.9	82.2	12.4	0.0	0.0
GS	0.0	0.0	0.0	0.0	100.0	100.0
GSE	0.0	3.4	56.3	40.2	0.0	0.0
GSM	3.6	5.5	56.4	34.5	0.0	0.0
HM	1.3	11.6	64.3	22.5	0.3	0.3
HT	0.8	8.9	59.7	29.9	0.5	0.5
IC	1.1	8.2	54.0	36.2	0.4	0.4
IM	1.3	6.4	70.5	21.8	0.0	0.0

TABLE C-6 (CONT.)

RATING	E4	E5	E6	E7	E8	E9
IS	0.0	10.3	77.2	12.5	0.0	0.0
JO	0.0	12.0	64.0	24.0	0.0	0.0
LI	1.8	23.2	58.9	16.1	0.0	0.0
LN	0.0	5.1	65.8	29.1	0.0	0.0
MA	0.0	7.6	79.9	12.2	0.3	0.3
ML	0.0	12.0	64.0	24.0	0.0	0.0
MM	1.4	6.7	51.5	38.6	1.8	1.8
MN	0.0	17.0	67.0	16.0	0.0	0.0
MR	0.7	12.3	67.9	18.7	0.4	0.4
MS	5.5	48.6	41.3	4.5	0.1	0.1
MT	0.4	4.3	70.5	24.8	0.0	0.0
MU	3.6	28.5	54.7	10.2	2.2	2.2
NC	0.0	0.3	69.6	28.6	1.0	1.0
OM	0.0	4.8	76.2	19.0	0.0	0.0
OS	1.7	11.1	60.1	25.6	1.5	1.5
OT	0.0	5.8	78.0	16.2	0.0	0.0
PC	5.3	28.2	61.1	5.3	0.0	0.0
PH	0.6	8.0	77.9	13.5	0.0	0.0
PI	0.0	0.0	0.0	0.0	0.0	0.0
PM	0.0	9.1	68.2	22.7	0.0	0.0
PN	1.6	6.9	52.5	38.2	0.8	0.8
PR	2.2	20.9	68.0	8.4	0.0	0.0
QM	2.2	12.0	48.1	37.3	0.5	0.5
RM	1.1	11.5	73.2	14.0	0.2	0.2
RP	0.0	14.7	63.2	22.1	0.0	0.0
SH	4.5	30.5	53.5	11.0	0.5	0.5
SK	1.6	16.7	57.4	24.1	0.2	0.2
SM	2.0	11.2	68.8	18.0	0.0	0.0
ST	0.0	0.0	0.0	0.0	0.0	0.0
STG	1.3	3.5	57.5	37.7	0.0	0.0
STS	[illegible]	3.1	48.7	43.6	4.1	4.1
SW	[illegible]	9.1	63.6	25.0	1.1	1.1
TD	0.9	8.3	79.8	10.4	0.6	0.6

TABLE C-6 (CONT.)

RATING	E4	E5	E6	E7	E8	E9
TM	1.9	4.8	78.8	14.5	0.0	0.0
UT	0.0	31.0	58.5	9.9	0.0	0.0
YM	1.0	11.1	64.4	22.8	0.6	0.6

TABLE C-7

FY-82 Shortages of Current Manpower Inventories From Billets Authorized by SRB Zone*

RATING	% Shortages ZONE A	ZONE B	ZONE C
AB	0	0	0
ABE	38	63	66
ABF	38	63	61
ABH	28	63	65
AC	38	67	68
AD	21	72	63
AE	30	71	54
AF	0	0	0
AG	14	69	92
AK	39	69	68
AM	0	0	0
AME	27	71	64
AMH	32	64	51
AMS	23	70	67
AO	34	69	[illegible]
AQ	23	71	62
AS	0	93	66
ASE	41	70	0
ASM	44	71	0
AT	33	65	67
AV	0	0	0
AW	32	33	17
AX	49	75	68
AZ	50	77	70
BM	45	63	66
BT	33	60	72
BU	22	76	65
CE	37	80	74
CM	27	80	75
CTA	39	58	59

*From Equation 2.2

TABLE C-7 (CONT.)

RATING	ZONE A	ZONE B	ZONE C
CTI	36	66	75
CTM	43	60	80
CTO	39	62	65
CTR	45	66	69
CTT	35	68	77
CU	0	0	0
DK	32	71	78
DM	42	69	67
DP	10	67	73
DS	21	64	80
DT	27	62	64
EA	25	84	64
EM	29	68	77
EN	28	72	76
EO	27	78	85
EQ	0	0	0
ET	27	71	79
EW	20	78	84
FT	0	0	0
FTB	7	59	78
FTG	30	79	83
FTM	47	69	88
GM	0	0	0
GMG	51	73	68
GMM	44	65	79
GMT	35	69	75
GS	0	0	0
GSE	49	57	72
GSM	35	70	75
HM	33	64	62
HT	39	73	72
IC	39	75	74
IM	58	80	60

TABLE C-7 (CONT.)

RATING	ZONE A	ZONE B	ZONE C
IS	25	75	67
JO	32	66	67
LI	20	68	65
LN	53	70	72
MA	-3600	72	72
ML	60	75	70
MM	27	69	75
MN	52	56	48
MR	55	73	69
MS	56	79	84
MT	23	56	60
MU	72	73	68
NC	-200	83	71
OM	60	75	70
OS	44	73	75
OT	33	72	70
PC	49	70	67
PH	10	76	70
PI	0	0	0
PM	39	88	71
PN	16	60	72
PR	38	68	64
QM	42	73	77
RM	45	72	67
RP	39	76	60
SH	51	68	64
SK	48	62	74
SM	52	68	74
ST	0	0	0
STG	27	80	84
STS	6	65	81
SW	9	79	67
TD	37	60	52

TABLE C-7 (CONT.)

RATING	ZONE A	ZONE B	ZONE C
TM	33	64	69
UT	40	75	68
YM	30	65	65

TABLE C-8

Objective Force Model (OFM) Projected Growth of Billets Authorized from FY-82 to FY-86*

RATING	% GROWTH	RATING	% GROWTH
AB	- 3	CTI	5
ABE	6	CTM	11
ABF	5	CTO	7
ABH	7	CTR	15
AC	6	CTT	26
AD	16	CU	- 2
AE	16	DK	10
AF	7	DM	- 1
AG	3	DP	17
AK	8	DS	17
AM	1	DT	7
AME	19	EA	5
AMH	19	EM	10
AMS	11	EN	11
AO	9	EO	15
AQ	14	EQ	3
AS	14	ET	10
ASE	27	EW	9
ASM	-12	FT	10
AT	14	FTB	14
AV	8	FTG	19
AW	53	FTM	18
AX	14	GM	15
AZ	5	GMG	10
BM	10	G M	18
BT	0	GMT	- 7
BU	18	GS	5
CE	12	GSE	40
CM	18	GSM	38
CTA	10	HM	16

*From Equation 2.3

TABLE C-8 (CONT.)

RATING	% GROWTH	RATING	% GROWTH
HT	14	PH	6
IC	8	PI	71
IM	15	PM	12
IS	19	PN	6
JO	8	PR	14
LI	12	QM	13
LN	8	RM	9
MA	23	RP	56
MI	16	SH	2
MM	6	SK	7
MN	6	SM	8
MR	15	ST	33
MS	6	STG	9
MT	9	STS	15
MU	- 1	SW	18
NC	15	TD	16
OM	21	TM	9
OS	12	UT	18
OT	16	YM	7
PC	7		

APPENDIX D: MANPOWER COSTS

TABLE D-1

FY-82 Enlisted Billet Cost Estimates Excluding SRB Payments*

RATING	Paygrades E4	E5	E6	E7	E8	E9
AB	0	0	0	0	36400	41500
ABE	19200	23900	27900	31600	0	0
ABF	19200	23300	27100	30700	0	0
ABH	19100	22700	26500	31400	0	0
AC	21100	25000	28400	31800	35200	40400
AD	19700	23600	27800	31700	35500	0
AE	20300	24100	28200	31800	35600	0
AF	0	0	0	0	0	40400
AG	19000	22500	26600	30800	35000	40400
AK	18500	22200	26700	30900	34900	39700
AM	0	0	0	0	35100	0
AME	20500	24100	27900	31100	0	0
AMH	19300	23500	27300	31000	0	0
AMS	19600	23400	27100	31100	0	0
AO	19200	23100	27300	31600	36100	41000
AQ	24700	28400	31300	33500	35500	0
AS	0	0	27200	30600	33800	38800
ASE	20400	24300	0	0	0	0
ASM	23000	26500	0	0	0	0
AT	22300	26400	29400	32200	35800	0
AV	0	0	0	0	0	40300
AW	20700	25200	29100	32700	36700	41800
AX	24700	26900	30000	32400	35600	0
AZ	18300	21500	26800	30700	35600	39100
BM	18700	23000	27100	31600	35900	41600
BT	19900	24000	28100	32200	35900	41100
BU	18900	22800	27500	31200	34900	0
CE	20300	24100	28000	31400	35400	0
CM	20100	24100	28500	32000	36300	0
CTA	21000	24300	27100	30500	33500	40300

*Billet costs are rounded to nearest hundreds of dollars

TABLE D-1 (CONT.)

RATING	E4	E5	E6	E7	E8	E9
CTI	20100	23900	27500	30400	35300	38700
CTM	32100	33400	33700	33500	36500	39400
CTO	21400	25100	28000	31400	34300	40100
CTR	22900	25900	28100	31100	35000	40100
CTT	29700	33200	32600	33400	35800	40300
CU	0	0	0	0	0	40100
DK	18800	22800	27500	31300	34600	40000
DM	18200	22000	26000	31200	32700	41100
DP	19100	22200	26700	31200	35400	39800
DS	23200	28300	36100	38800	40100	39800
DT	18700	21900	25700	30100	34600	39500
EA	18400	22500	27100	32100	33700	0
EM	21200	25400	29700	33700	37200	42100
EN	18800	22800	27500	32100	36400	41600
EO	19300	23900	28000	31900	35700	0
EQ	0	0	0	0	0	40000
ET	23000	26200	30000	33400	36500	41500
EW	26800	29500	32600	35100	38100	42300
FT	0	0	0	0	38300	42300
FTB	23200	26500	29500	33300	0	0
FTG	24900	27100	31200	34100	0	0
FTM	26100	28700	32700	34500	0	0
GM	0	0	0	0	38700	42700
GMG	19100	23900	28500	33000	0	0
GMM	20400	25700	30200	33700	0	0
GMT	20100	25100	28600	32000	35700	40800
GS	0	0	0	0	34000	39200
GSE	21100	26100	31500	34100	0	0
GSM	21000	26500	30900	33300	0	0
HM	18600	21900	25600	30100	34800	40500
HT	18800	23100	27200	31200	35400	42200
IC	19500	23700	28800	33700	38300	0
IM	20200	24300	28500	31800	34300	0

TABLE D-1 (CONT.)

RATING	E4	E5	E6	E7	E8	E9
IS	20800	24800	28400	32200	35400	39500
JO	18400	21200	25200	29500	34900	39000
LI	18000	21800	26300	30900	33000	38200
LN	0	23200	25200	29900	32900	38300
MA	0	23300	27600	31400	35400	39900
ML	20000	21500	26600	30200	34500	41100
MM	19300	23900	28400	33500	37200	42300
MN	24500	28200	30200	32100	33900	40600
MR	18900	23600	27900	31600	34800	40600
MS	19700	24100	28900	32700	36400	40900
MT	21200	26200	29900	33900	0	0
MU	24100	25700	28100	31400	34700	39500
NC	0	22400	27800	31900	36500	41100
OM	21000	24700	28300	32000	34700	0
OS	20800	25700	29500	32800	36300	41400
OT	22900	26500	29500	32100	35300	38900
PC	18900	22700	27100	31200	33500	40500
PH	20900	22600	25000	29700	34700	38400
PI	0	0	0	0	0	39400
PM	19700	22200	27000	30500	0	0
PN	18500	22200	25800	30700	35200	40400
PR	20400	23600	27400	31400	35900	41000
QM	18500	22900	27500	32600	36900	42700
RM	20800	24400	28300	32800	36700	41300
RP	18200	21900	25400	29300	33100	37900
SH	19300	23800	27900	31200	35400	40500
SK	18500	22600	26700	31300	35900	41100
SM	19000	23200	27600	32700	36400	41400
ST	0	0	0	0	0	40600
STG	20400	24600	29200	32900	36400	0
STS	25000	29400	33900	36700	39500	0
SW	19200	22900	28000	31900	34800	0
TD	22700	26200	29000	31400	34900	40100

TABLE D-1 (CONT.)

RATING	E4	E5	E6	E7	E8	E9
TM	21300	26000	29200	33100	36900	42200
UT	18900	23600	27900	31500	35200	39900
YM	18800	22200	26100	31000	35500	41100

Source: Enlisted Billet Cost Model (BCM) by Frankel (1983)

TABLE D-2

FY-82 Zone A Distribution of Enlisted Billet Costs Excluding SRB Payments*

RATING	Paygrades E4	E5	E6	E7	E8	E9	TOTAL
AB	0	0	0	0	0	0	0
ABE	12250	8604	0	32	0	0	20886
ABF	15494	4334	190	0	0	0	20018
ABH	15337	4449	53	0	0	0	19839
AC	8693	14450	256	32	0	0	23431
AD	13297	7599	83	0	0	0	20979
AE	12281	9447	85	0	0	0	21813
AF	0	0	0	0	0	0	0
AG	10507	10035	27	0	0	0	20569
AK	12043	7659	107	0	0	0	19809
AM	0	0	0	0	35100	0	35100
AME	12894	8869	84	0	0	0	21847
AMH	14417	5898	55	0	0	0	20370
AMS	14622	5827	135	0	0	0	20584
AO	11501	9101	218	0	0	0	20820
AQ	10349	16160	344	33	0	0	26886
AS	0	0	27200	0	0	0	27200
ASE	12811	9040	0	0	0	0	21851
ASM	19757	3736	0	0	0	0	23493
AT	11172	12857	353	32	0	0	24414
AV	0	0	0	0	0	0	0
AW	9377	13457	349	0	37	0	23220
AX	12350	12751	780	0	0	0	25881
AZ	11895	7482	27	31	0	0	19435
BM	13726	5934	190	32	0	0	19882
BT	12298	9144	28	0	0	0	21470
BU	11113	9280	110	31	0	0	20534
CE	11043	10941	56	0	0	0	22040
CM	13688	7616	57	64	0	0	21425
CTA	11550	10716	163	91	0	0	22520

*From Equation 3.1

TABLE D-2 (CONT.)

RATING	E4	E5	E6	E7	E8	E9	TOTAL
CTI	10532	11233	165	0	0	0	21930
CTM	18201	14061	404	0	0	0	32666
CTO	13953	8685	56	0	0	0	22694
CTR	14358	9661	0	0	0	0	24019
CTT	16068	15040	163	67	0	0	31338
CU	0	0	0	0	0	0	0
DK	12276	7912	0	0	0	0	20188
DM	12176	7106	208	0	0	0	19490
DP	11212	9013	187	0	0	0	20412
DS	10301	15084	830	0	0	0	26215
DT	14044	5409	0	60	0	0	19513
EA	10028	10237	0	0	0	0	20265
EM	11130	11481	653	0	0	0	23264
EN	12652	7364	82	32	0	0	20130
EO	13182	7528	28	0	0	0	20738
EQ	0	0	0	0	0	0	0
ET	8970	15458	600	0	0	0	25028
EW	11872	16195	261	0	0	0	28328
FT	0	0	0	0	0	0	0
FTB	8468	16509	383	0	0	0	25360
FTG	9462	15799	1154	34	0	0	26449
FTM	11119	16158	360	0	0	0	27637
GM	0	0	0	0	0	0	0
GMG	11746	9082	142	33	0	0	21003
GMM	10832	11899	181	0	0	0	22912
GMT	11356	10768	172	0	0	0	22296
GS	0	0	0	0	0	0	0
GSE	7026	16051	1606	0	0	0	24683
GSM	8610	14946	772	0	0	0	24328
HM	13280	6088	205	30	0	0	19603
HT	11581	8639	245	31	0	0	20496
IC	8794	12134	1037	34	0	0	21999
IM	11130	10206	627	223	0	0	22186

TABLE D-2 (CONT.)

RATING	E4	E5	E6	E7	E8	E9	TOTAL
IS	8195	14260	653	161	71	0	23340
JO	10065	9413	227	0	0	0	19705
LI	11880	7303	131	0	0	0	19314
LN	0	22179	1109	0	0	0	23288
MA	0	17475	5741	1319	0	0	24535
ML	12000	8600	0	0	0	0	20600
MM	8974	11568	1420	0	0	0	21962
MN	16831	8798	0	0	0	0	25629
MR	12550	7812	112	0	0	0	20474
MS	15583	5013	29	0	0	0	20625
MT	8565	15379	299	0	0	0	24243
MU	13062	6605	5451	220	0	0	25338
NC	0	14941	9257	0	0	0	24198
OM	13818	8447	0	0	0	0	22265
OS	12792	9766	118	33	0	0	22709
OT	14358	9725	118	64	0	0	24265
PC	16027	3405	81	0	0	0	19513
PH	11725	9763	125	30	0	0	21643
PI	0	0	0	0	0	0	0
PM	12155	8503	0	0	0	0	20658
PN	9675	10323	310	0	0	0	20308
PR	12607	8921	55	63	0	0	21646
QM	11192	8839	220	65	0	0	20316
RM	12064	9980	283	0	0	0	22327
RP	9482	10205	356	0	0	0	20043
SH	14764	5593	28	0	0	0	20385
SK	10970	9040	133	31	0	0	20174
SM	11628	8886	138	0	0	0	20652
ST	0	0	0	0	0	0	0
STG	7446	14883	847	33	0	0	23209
STS	9050	9555	10611	0	0	0	29216
SW	13152	7145	84	0	0	0	20381
TD	12417	11790	87	0	0	0	24294

TABLE D-2 (CONT.)

RATING	E4	E5	E6	E7	E8	E9	TOTAL
TM	12056	11102	175	0	0	0	23333
UT	12228	8284	56	0	0	0	20568
YM	11299	8458	470	0	0	0	20227

TABLE D-3

FY-82 Zone B Distribution of Enlisted Billet Costs Excluding SRB Payments*

RATING	Paygrades E4	E5	E6	E7	E8	E9	TOTAL
AB	0	0	0	0	0	0	0
ABE	1517	13456	9904	95	0	0	24972
ABF	4973	10625	7642	92	0	0	23332
ABH	4794	10397	7738	0	0	0	22929
AC	1224	10700	14456	159	0	0	26539
AD	2187	13948	8229	63	35	0	24462
AE	365	13568	11788	32	0	0	25753
AF	0	0	0	0	0	0	0
AG	855	10822	12582	0	0	0	24259
AK	2460	15584	4352	31	0	0	22427
AM	0	0	0	0	0	0	0
AME	1537	13592	10072	0	0	0	25201
AMH	2451	15251	6115	0	0	0	23817
AMS	2862	11934	9268	62	0	0	24126
AO	1498	11319	11794	0	0	0	24611
AQ	1581	14399	13302	167	0	0	29449
AS	0	0	26438	857	0	0	27295
ASE	3427	20218	0	0	0	0	23645
ASM	5888	19716	0	0	0	0	25604
AT	1472	13490	12289	161	0	0	27412
AV	0	0	0	0	0	0	0
AW	973	9198	17053	33	0	0	27257
AX	1235	12186	14490	421	0	0	28332
AZ	3202	13459	5226	123	0	0	22010
BM	2581	12903	8076	63	36	0	23659
BT	1851	12720	10481	97	0	0	25149
BU	1247	14957	7150	530	0	0	23884
CE	1421	13737	9464	659	0	0	25281
CM	3115	17424	3277	224	0	0	24040
CTA	966	15771	8265	0	0	0	25002

*From Equation 3.1

TABLE D-3 (CONT.)

RATING	E4	E5	E6	E7	E8	E9	TOTAL
CTI	1648	9679	14135	0	0	0	25462
CTM	2921	17702	12435	301	0	0	33359
CTO	3167	14232	7980	0	0	0	25379
CTR	1832	17301	6969	0	0	120	26222
CTT	2198	15471	14800	200	0	0	32669
CU	0	0	0	0	0	0	0
DK	996	12517	10972	0	0	0	24485
DM	1947	13090	7124	749	0	0	22910
DP	1853	10723	10920	281	71	0	23848
DS	789	10726	20794	427	0	0	32736
DT	3385	13534	5166	0	0	0	22085
EA	662	12060	11626	0	0	0	24348
EM	1611	9779	15592	472	0	42	27496
EN	1485	11240	11660	64	73	0	24522
EO	1583	17519	5180	0	0	0	24282
EQ	0	0	0	0	0	0	0
ET	1127	8725	18300	267	0	0	28419
EW	2841	8496	18289	1579	0	0	31205
FT	0	0	0	0	0	0	0
FTB	951	6837	20296	466	0	0	28550
FTG	1544	7561	19344	1330	0	0	29779
FTM	1305	10877	17854	897	0	0	30933
GM	0	0	0	0	0	0	0
GMG	1585	11496	12369	99	0	0	25549
GMM	673	12670	14224	135	0	0	27702
GMT	1749	8459	16216	288	0	0	26712
GS	0	0	0	0	0	0	0
GSE	717	10858	16285	1159	0	0	29019
GSM	1260	12057	14677	333	0	0	28327
HM	2437	12352	7706	90	0	40	22625
HT	1316	10141	13083	281	0	42	24863
IC	975	9622	15293	472	0	0	26362
IM	909	11421	13395	477	0	0	26202

TABLE D-3 (CONT.)

RATING	E4	E5	E6	E7	E8	E9	TOTAL
IS	1872	11458	12752	0	0	0	26082
JO	1582	9243	10987	855	244	273	23184
LI	1908	12818	7732	371	0	0	22829
LN	0	9999	14339	0	0	0	24338
MA	0	12675	12144	377	142	0	25338
ML	800	6880	17024	0	0	0	24704
MM	3146	7815	13916	636	0	0	25513
MN	1176	18697	8698	0	0	0	28571
MR	1058	10030	14341	158	0	0	25587
MS	5417	16099	1589	33	0	0	23138
MT	424	14410	12857	0	0	0	27691
MU	4579	11462	8823	1287	278	0	26429
NC	0	1299	24019	2265	219	0	27802
OM	819	11140	14433	0	0	0	26392
OS	2080	12079	12537	164	0	0	26860
OT	916	12349	14573	0	0	0	27838
PC	5235	12144	4932	187	0	0	22498
PH	3177	11029	8800	238	0	0	23244
PI	0	0	0	0	0	0	0
PM	1793	14119	7371	0	0	0	23283
PN	832	8547	14345	368	70	0	24162
PR	1550	16284	6412	0	0	0	24246
QM	1609	9916	12705	554	74	0	24858
RM	1643	13835	9990	33	0	0	25501
RP	1966	10293	10719	0	0	0	22978
SH	2548	15208	6305	125	0	0	24186
SK	1128	11323	11481	250	0	0	24182
SM	2014	12134	10240	0	0	0	24388
ST	0	0	0	0	0	0	0
STG	1285	8659	15914	1316	0	0	27174
STS	1325	7526	21798	1725	0	0	32374
SW	2131	11015	11396	0	0	0	24542
TD	863	14069	12238	63	0	0	27233

TABLE D-3 (CONT.)

RATING	E4	E5	E6	E7	E8	E9	TOTAL
TM	1512	11518	14045	132	0	0	27207
UT	1342	17771	4436	567	0	0	24116
YM	1222	11522	10597	279	0	41	23661

TABLE D-4

FY-82 Zone C Distribution of Enlisted Billet Costs Excluding SRB Payments*

RATING	Paygrades E4	E5	E6	E7	E8	E9	TOTAL
AB	0	0	0	0	0	0	0
ABE	211	2964	15233	10080	0	0	28488
ABF	307	4310	11463	11543	0	0	27623
ABH	783	3223	18921	3266	0	0	26193
AC	63	1675	20874	6201	0	0	28813
AD	236	3587	18876	4660	319	0	27678
AE	142	2410	20558	4993	249	0	28352
AF	0	0	0	0	0	0	0
AG	684	4500	7741	14568	0	0	27493
AK	573	5705	16127	3337	0	0	25742
AM	0	0	0	0	35100	0	35100
AME	287	2916	21427	2986	0	0	27616
AMH	309	4371	16817	5673	0	0	27170
AMS	470	3416	17778	5411	0	0	27075
AO	96	2287	21485	3413	72	82	27435
AQ	123	3891	22536	4254	390	0	31194
AS	0	0	23283	4406	0	0	27689
ASE	632	23547	0	0	0	0	24179
ASM	2093	24088	0	0	0	0	26181
AT	290	3986	20139	4766	107	0	29288
AV	0	0	0	0	0	0	0
AW	124	832	20545	8240	110	125	29976
AX	123	3093	18180	8780	178	0	30354
AZ	366	4536	18706	2180	0	0	25788
BM	430	3979	16937	5467	179	208	27200
BT	438	3264	15174	9628	72	82	28658
BU	76	2417	19580	5242	384	0	27699
CE	304	6338	17472	3077	0	0	27191
CM	161	6941	17698	2656	0	0	27456
CTA	0	1993	17317	8296	234	282	28122

*From Equation 3.1

TABLE D-4 (CONT.)

RATING	E4	E5	E6	E7	E8	E9	TOTAL
CTI	181	1864	19855	5806	0	0	27706
CTM	963	3206	23961	5460	0	0	33590
CTO	556	2184	19852	5621	0	0	28213
CTR	114	2486	20682	5038	0	0	28320
CTT	178	1726	24450	6413	0	0	32767
CU	0	0	0	0	0	0	0
DK	188	2941	21092	2692	346	400	27659
DM	0	3960	18200	3744	0	0	25904
DP	134	2331	17729	6989	0	0	27183
DS	441	2632	24837	7566	200	199	35875
DT	299	4161	16242	4756	138	158	25754
EA	0	585	20677	6773	0	0	28035
EM	382	1854	15444	12536	632	716	31564
EN	282	2462	19277	5521	146	166	27854
EO	753	8652	15204	1754	0	0	26363
EQ	0	0	0	0	0	0	0
ET	161	1284	19770	9285	255	290	31045
EW	0	3451	16202	13549	0	0	33202
FT	0	0	0	0	38300	42300	80600
FTB	0	344	11357	20080	0	0	31781
FTG	174	1572	12511	18175	0	0	32432
FTM	261	2841	16088	13731	0	0	32921
GM	0	0	0	0	38700	42700	81400
GMG	229	1004	22059	5709	0	0	29001
GMM	306	2467	15976	12132	0	0	30881
GMT	100	1230	23509	3968	0	0	28807
GS	0	0	0	0	34000	39200	73200
GSE	0	887	17734	13708	0	0	32329
GSM	756	1457	17428	11488	0	0	31129
HM	242	2540	16461	6772	104	121	26240
HT	150	2056	16238	9329	177	211	28161
IC	214	1943	15552	12199	153	0	30061
IM	263	1555	20092	6932	0	0	28842

Table D-4 (CONT.)

RATING	E4	E5	E6	E7	E8	E9	TOTAL
IS	0	2554	21925	4025	0	0	28504
JO	0	2544	16128	7080	0	0	25752
LI	324	5058	15491	4975	0	0	25848
LN	0	1183	16582	8701	0	0	26466
MA	0	1771	22052	3831	106	120	27880
ML	0	2580	17024	7248	0	0	26852
MM	270	1601	14626	12931	670	761	30859
MN	0	4794	20234	5136	0	0	30164
MR	132	2903	18944	5909	139	162	28189
MS	1083	11713	11936	1471	36	41	26280
MT	85	1127	21079	8407	0	0	30698
MU	868	7324	15371	3203	763	869	28398
NC	0	67	19349	9123	365	411	29315
OM	0	1186	21565	6080	0	0	28831
OS	354	2853	17729	8397	544	621	30498
OT	0	1537	23010	5200	0	0	29747
PC	1002	6401	16558	1654	0	0	25615
PH	125	1808	19475	4009	0	0	25417
PI	0	0	0	0	0	0	0
PM	0	2020	18414	6923	0	0	27357
PN	296	1532	13545	11727	282	323	27705
PR	449	4932	18632	2638	0	0	26651
QM	407	2748	13227	12160	184	213	28939
RM	229	2806	20716	4592	73	83	28499
RP	0	3219	16053	6475	0	0	25747
SH	868	7259	14926	3432	177	202	26864
SK	296	3774	15326	7543	72	82	27093
SM	380	2598	18989	5886	0	0	27853
ST	0	0	0	0	0	0	0
STG	265	861	16790	12403	0	0	30319
STS	125	911	16509	16001	1619	0	35165
SW	211	2084	17808	7975	383	0	28461
TD	204	2175	23142	3266	209	241	29237

TABLE D-4 (CONT.)

RATING	E4	E5	E6	E7	E8	E9	TOTAL
TM	405	1248	23010	4799	0	0	29462
UT	0	7316	16321	3118	0	0	26755
YM	188	2464	16808	7068	213	247	26988

APPENDIX E: RETENTION SEVERITY COMPONENT DATA

TABLE E-1

FY-82 Retention Severity Index Components
For Reenlistment Zone A

RATING	% SHORTAGE[a]	% GROWTH[b]	COST[c]	PRIORITY[d]	SIZE[e]
AB	0	- 3	0	75	0
ABE	38	6	20900	79	683
ABF	38	5	20000	75	574
ABH	28	7	19800	75	1161
AC	38	6	23400	90	1022
AD	21	16	21000	81	3860
AE	30	16	21800	81	2788
AF	0	7	0	80	0
AG	14	3	20600	73	704
AK	39	8	19800	68	1618
AM	0	1	35100	81	1
AME	27	19	21800	76	897
AMH	32	19	20400	76	1666
AMS	23	11	20600	76	2849
AO	34	9	20800	79	1988
AQ	23	14	26900	87	1111
AS	0	14	27200	76	1
ASE	41	27	21900	79	258
ASM	44	-12	23500	78	495
AT	33	14	24400	84	3930
AV	0	8	0	84	0
AW	32	53	23200	90	1056
AX	49	14	25900	83	614
AZ	50	5	19400	71	995
BM	45	10	19900	69	3063

a - From Table C-7

b - From Table C-8

c - From Table 3.4

d - From Table 4.1

e - From Table C-1

TABLE E-1 (CONT.)

RATING	% SHORTAGE	% GROWTH	COST	PRIORITY	SIZE
BT	33	0	21500	80	3885
BU	22	18	20500	62	981
CE	37	12	22000	62	421
CM	27	18	21400	62	526
CTA	39	10	22500	65	349
CTI	36	5	21900	76	315
CTM	43	11	32700	74	935
CTO	39	7	22700	74	584
CTR	45	15	24000	75	498
CTT	35	26	31300	75	627
CU	0	- 2	0	62	0
DK	32	10	20200	76	842
DM	42	- 1	19500	53	133
DP	10	17	20400	75	1658
DS	21	17	26200	79	1499
DT	27	7	19500	54	1041
EA	25	5	20300	58	132
EM	29	10	23300	79	5310
EN	28	11	20100	80	2814
EO	27	15	20700	53	679
EQ	0	3	0	54	0
ET	27	10	25000	86	8373
EW	20	9	28300	90	946
FT	0	10	0	87	0
FTB	7	14	25400	92	477
FTG	30	19	26400	80	1527
FTM	47	18	27600	87	1384
GM	0	15	0	83	0
GMG	51	10	21000	77	1059
GMM	44	18	22900	82	469
GMT	35	- 7	22300	81	644
GS	0	5	0	87	0

TABLE E-1 (CONT.)

RATING	% SHORTAGE	% GROWTH	COST	PRIORITY	SIZE
GSE	49	40	24700	80	195
GSM	35	38	24300	80	551
HM	33	16	19600	79	6951
HT	39	14	20500	80	3778
IC	39	8	22000	79	2441
IM	58	15	22200	70	138
IS	25	19	23300	69	426
JO	32	8	19700	29	320
LI	20	12	19300	39	203
LN	53	8	23300	34	90
MA	-3600	23	24500	24	48
ML	60	16	20600	44	40
MM	27	6	22000	90	11308
MN	52	6	25600	50	160
MR	55	15	20500	77	718
MS	56	6	20600	65	3892
MT	23	9	24200	83	941
MU	72	- 1	25300	10	144
NC	-200	15	24200	39	3
OM	60	21	22300	49	79
OS	44	12	22700	79	2842
OT	33	16	24300	75	542
PC	49	7	19500	49	361
PH	10	6	21600	51	921
PI	0	71	0	58	0
PM	39	12	20700	47	47
PN	16	6	20300	63	2686
PR	38	14	21600	71	650
QM	42	13	20300	82	1195
RM	45	9	22300	87	4960
RP	39	56	20000	15	219
SH	51	2	20400	64	1326
SK	48	7	20200	72	2396

TABLE E-1 (CONT.)

RATING	% SHORTAGE	% GROWTH	COST	PRIORITY	SIZE
SM	52	8	20700	74	812
ST	0	33	0	84	0
STG	27	9	23200	81	1877
STS	6	15	29200	82	1950
SW	9	18	20400	63	362
TD	37	16	24300	60	751
TM	33	9	23300	79	1294
UT	40	18	20600	55	405
YM	30	7	20200	60	4128

TABLE E-2

FY-82 Retention Severity Index Components
For Reenlistment Zone B

RATING	% SHORTAGE[a]	% GROWTH[b]	COST[c]	PRIORITY[d]	SIZE[e]
AB	0	- 3	0	75	0
ABE	63	6	25000	79	318
ABF	63	5	23300	75	294
ABH	63	7	22900	75	542
AC	67	6	26500	90	552
AD	72	16	24500	81	1644
AE	71	16	25800	81	1091
AF	0	7	0	80	0
AG	69	3	24300	73	243
AK	69	8	22400	68	832
AM	0	1	0	81	0
AME	71	19	25200	76	388
AMH	64	19	23800	76	976
AMS	70	11	24100	76	1176
AO	69	9	24600	79	909
AQ	71	14	29400	87	424
AS	93	14	27300	76	36
ASE	70	27	23600	79	95
ASM	71	-12	25600	78	199
AT	65	14	27400	84	2003
AV	0	8	0	84	0
AW	33	53	27300	90	676
AX	75	14	28300	83	298
AZ	77	5	22000	71	513
BM	63	10	23700	69	2010

a - From Table C-7

b - From Table C-8

c - From Table 3.4

d - From Table 4.1

e - From Table C-2

TABLE E-2 (CONT.)

RATING	% SHORTAGE	% GROWTH	COST	PRIORITY	SIZE
BT	60	0	25100	80	1846
BU	76	18	23900	62	288
CE	80	12	25300	62	142
CM	80	18	24000	62	148
CTA	58	10	25000	65	239
CTI	66	5	25500	76	220
CTM	60	11	33400	74	528
CTO	62	7	25400	74	365
CTR	66	15	26200	75	286
CTT	68	26	32700	75	339
CU	0	- 2	0	62	0
DK	71	10	24500	76	419
DM	69	- 1	22900	53	84
DP	67	17	23800	75	565
DS	64	17	32700	79	615
DT	62	7	22100	54	453
EA	84	5	24300	58	28
EM	68	10	27500	79	1924
EN	72	11	24500	80	1068
EO	78	15	24300	53	195
EQ	0	3	0	54	0
ET	71	10	28400	86	2830
EW	78	9	31200	90	264
FT	0	10	0	87	0
FTB	59	14	28500	92	221
FTG	79	19	29800	80	437
FTM	69	18	30900	87	663
GM	0	15	0	83	0
GMG	73	10	25500	77	618
GMM	65	18	27700	82	272
GMT	69	- 7	26700	81	344
GS	0	5	0	87	0

TABLE E-2 (CONT.)

RATING	% SHORTAGE	% GROWTH	COST	PRIORITY	SIZE
GSE	57	40	29000	80	149
GSM	70	38	28300	80	200
HM	64	16	22600	79	3167
HT	73	14	24900	80	1527
IC	75	8	26400	79	803
IM	80	15	26200	70	66
IS	75	19	26100	69	156
JO	66	8	23200	29	140
LI	68	12	22800	39	85
LN	70	8	24300	34	102
MA	72	23	25300	24	250
ML	75	16	24700	44	25
MM	69	6	25500	90	4278
MN	56	6	28600	50	104
MR	73	15	25600	77	414
MS	79	6	23100	65	2207
MT	56	9	27700	83	453
MU	73	- 1	26400	10	121
NC	83	15	27800	39	154
OM	75	21	26400	49	51
OS	73	12	26900	79	1246
OT	72	16	27800	75	251
PC	70	7	22500	49	159
PH	76	6	23200	51	250
PI	0	71	0	58	0
PM	88	12	23300	47	11
PN	60	6	24200	63	1431
PR	68	14	24200	71	342
QM	73	13	24900	82	541
RM	72	9	25500	87	2224
RP	76	56	23000	15	83
SH	68	2	24200	64	847
SK	62	7	24200	72	1805

TABLE E-2 (CONT.)

RATING	% SHORTAGE	% GROWTH	COST	PRIORITY	SIZE
SM	68	8	24400	74	472
ST	0	33	0	84	0
STG	80	9	27200	81	505
STS	65	15	32400	82	527
SW	79	18	24500	63	81
TD	60	16	27200	60	495
TM	64	9	27200	79	690
UT	75	18	24100	55	170
YM	65	7	23700	60	2165

TABLE E-3

FY-82 Retention Severity Index Components
For Reenlistment Zone C

RATING	% SHORTAGE[a]	% GROWTH[b]	COST[c]	PRIORITY[d]	SIZE[e]
AB	0	- 3	0	75	0
ABE	66	6	28500	79	185
ABF	61	5	27600	75	189
ABH	65	7	26200	75	318
AC	68	6	28800	90	328
AD	63	16	27700	81	1528
AE	54	16	28400	81	1048
AF	0	7	0	80	0
AG	92	3	27500	73	55
AK	68	8	25700	68	518
AM	0	1	35100	81	3
AME	64	19	27600	76	280
AMH	51	19	27200	76	835
AMS	67	11	27100	76	849
AO	66	9	27400	79	639
AQ	62	14	31200	87	371
AS	66	14	27700	76	215
ASE	0	27	24200	79	32
ASM	0	-12	26200	78	99
AT	67	14	29300	84	1176
AV	0	8	0	84	0
AW	17	53	30000	90	337
AX	68	14	30400	83	218
AZ	70	5	25800	71	394
BM	66	10	27200	69	1349

a - From Table C-7
b - From Table C-8
c - From Table 3.4
d - From Table 4.1
e - From Table C-8

TABLE E-3 (CONT.)

RATING	% SHORTAGE	% GROWTH	COST	PRIORITY	SIZE
BT	72	0	28700	80	810
BU	65	18	27700	62	274
CE	74	12	27200	62	133
CM	75	18	27500	62	132
CTA	59	10	28100	65	147
CTI	75	5	27700	76	115
CTM	80	11	33600	74	135
CTO	65	7	28200	74	196
CTR	69	15	28300	75	197
CTT	77	26	32800	75	172
CU	0	- 2	0	62	0
DK	78	10	27700	76	210
DM	67	- 1	25900	53	50
DP	73	17	27200	75	304
DS	80	17	35900	79	215
DT	64	7	25800	54	253
EA	64	5	28000	58	38
EM	77	10	31600	79	939
EN	76	11	27900	80	668
EO	85	15	26400	53	127
EQ	0	3	0	54	0
ET	79	10	31000	86	1209
EW	84	9	33200	90	145
FT	0	10	80600	87	5
FTB	78	14	31800	92	78
FTG	83	19	32400	80	274
FTM	88	18	32900	87	191
GM	0	15	81400	83	2
GMG	68	10	29000	77	504
GMM	79	18	30900	82	136
GMT	75	- 7	28800	81	185
GS	0	5	73200	87	3

TABLE E-3 (CONT.)

RATING	% SHORTAGE	% GROWTH	COST	PRIORITY	SIZE
GSE	72	40	32300	80	87
GSM	75	38	31100	80	110
HM	62	16	26200	79	2149
HT	72	14	28200	80	1112
IC	74	8	30100	79	522
IM	60	15	28800	70	78
IS	67	19	28500	69	136
JO	67	8	25800	29	100
LI	65	12	25800	39	56
LN	72	8	26500	34	79
MA	72	23	27900	24	394
ML	70	16	26900	44	25
MM	75	6	30900	90	2098
MN	48	6	30200	50	94
MR	69	15	28200	77	268
MS	84	6	26300	65	1518
MT	60	9	30700	83	234
MU	68	- 1	28400	10	137
NC	71	15	29300	39	381
OM	70	21	28800	49	42
OS	75	12	30500	79	687
OT	70	16	29700	75	173
PC	67	7	25600	49	131
PH	70	6	25400	51	163
PI	0	71	0	58	0
PM	71	12	27400	47	22
PN	72	6	27700	63	773
PR	64	14	26700	71	225
QM	77	13	28900	82	416
RM	67	9	28500	87	1662
RP	60	56	25700	15	95
SH	64	2	26900	64	737
SK	74	7	27100	72	1009

TABLE E-3 (CONT.)

RATING	% SHORTAGE	% GROWTH	COST	PRIORITY	SIZE
SM	74	8	27900	74	250
ST	0	33	0	84	0
STG	84	9	30300	81	228
STS	81	15	35200	82	195
SW	67	18	28500	63	88
TD	52	16	29200	60	337
TM	69	9	29500	79	415
UT	68	18	26800	55	142
YM	65	7	27000	60	1578

TABLE E-4

Rankings For FY-82 Zone A RSI Components*

RATING	SHORTAGE	GROWTH	COST	PRIORITY	SIZE
AB	8	3	5	46	94
ABE	62	20	46	63	50
ABF	62	14	21	46	57
ABH	39	27	18	46	32
AC	62	20	74	96	37
AD	24	74	47	77	10
AE	43	74	53	77	16
AF	8	27	5	71	94
AG	20	10	39	39	49
AK	68	33	18	32	25
AM	8	8	99	77	88
AME	35	87	53	52	44
AMH	46	87	31	52	23
AMS	28	51	39	52	13
AO	54	39	45	63	20
AQ	28	61	92	92	33
AS	8	61	93	52	88
ASE	73	93	55	63	73
ASM	78	1	75	58	62
AT	51	61	82	87	7
AV	8	33	5	87	94
AW	46	97	68	96	35
AX	86	61	89	84	55
AZ	88	14	12	36	38
BM	81	46	20	33	12
BT	51	7	50	71	9
BU	26	82	35	24	39
CE	59	54	58	24	66
CM	35	82	49	24	60
CTA	68	46	64	30	70

*Scaled from 1 for least severe to 99 for most severe impact on retention.

TABLE E-4 (CONT.)

RATING	SHORTAGE	GROWTH	COST	PRIORITY	SIZE
CTI	58	14	55	52	72
CTM	76	51	98	41	42
CTO	68	27	65	41	56
CTR	81	68	76	46	61
CTT	56	92	97	46	54
CU	8	4	5	24	94
DK	46	46	25	52	45
DM	74	5	14	14	80
DP	18	78	31	46	24
DS	24	78	90	63	27
DT	35	27	14	16	36
EA	30	14	28	19	81
EM	41	46	71	63	4
EN	39	51	23	71	15
EO	35	68	43	14	51
EQ	8	10	5	16	94
ET	35	46	85	89	2
EW	22	39	95	96	40
FT	8	46	5	92	94
FTB	16	61	87	99	63
FTG	43	87	91	71	26
FTM	83	82	94	92	28
GM	8	68	5	84	94
GMG	89	46	47	56	34
GMM	78	82	67	81	64
GMT	56	2	62	77	53
GS	8	14	5	92	94
GSE	86	96	84	71	76
GSM	56	95	80	71	58
HM	51	74	16	63	3
HT	68	61	35	71	11
IC	68	33	58	63	18
IM	96	68	60	35	79

TABLE E-4 (CONT.)

RATING	SHORTAGE	GROWTH	COST	PRIORITY	SIZE
IS	30	87	71	33	65
JO	46	33	17	4	71
LI	22	54	11	6	75
LN	93	33	71	5	82
MA	1	91	83	3	84
ML	97	74	39	8	86
MM	35	20	58	96	1
MN	91	20	88	12	77
MR	94	68	35	56	48
MS	95	20	39	30	8
MT	28	39	77	84	41
MU	99	5	86	1	78
NC	2	68	77	6	87
OM	97	90	62	10	83
OS	78	54	65	63	14
OT	51	74	80	46	59
PC	86	27	14	10	69
PH	18	20	51	13	43
PI	8	99	5	19	94
PM	68	54	43	9	85
PN	21	20	28	27	17
PR	62	61	51	36	52
QM	74	57	28	81	31
RM	81	39	62	92	5
RP	68	98	21	2	74
SH	89	9	31	29	29
SK	84	27	25	38	19
SM	91	33	43	41	46
ST	8	94	5	87	94
STG	35	39	68	77	22
STS	15	68	96	81	21
SW	17	82	31	27	68
TD	59	74	80	21	47

TABLE E-4 (CONT.)

RATING	SHORTAGE	GROWTH	COST	PRIORITY	SIZE
TM	51	39	71	63	30
UT	72	82	39	18	67
YM	43	27	25	21	6

TABLE E-5

Rankings For FY-82 Zone B RSI Components*

RATING	SHORTAGE	GROWTH	COST	PRIORITY	SIZE
AB	6	3	6	46	94
ABE	26	20	52	63	50
ABF	26	14	24	46	52
ABH	26	27	18	46	31
AC	40	20	72	96	30
AD	68	74	45	77	12
AE	62	74	65	77	17
AF	6	27	6	71	94
AG	51	10	40	39	60
AK	51	33	14	32	22
AM	6	8	6	77	94
AME	62	87	55	52	45
AMH	30	87	29	52	19
AMS	57	51	33	52	16
AO	51	39	48	63	20
AQ	62	61	92	92	42
AS	99	61	78	52	85
ASE	57	93	26	63	78
ASM	62	1	63	58	65
AT	34	61	80	87	8
AV	6	33	6	87	94
AW	12	97	78	96	25
AX	79	61	86	84	51
AZ	86	14	12	36	35
BM	26	46	27	33	7
BT	19	7	54	71	10
BU	84	82	31	24	53
CE	93	54	56	24	73
CM	93	82	32	24	72
CTA	16	46	52	30	61

*Scaled from 1 for least severe to 99 for most severe impact on retention.

TABLE E-5 (CONT.)

RATING	SHORTAGE	GROWTH	COST	PRIORITY	SIZE
CTI	38	14	60	52	63
CTM	19	51	99	41	33
CTO	23	27	58	41	46
CTR	38	68	67	46	54
CTT	44	92	97	46	49
CU	6	4	6	24	94
DK	62	46	45	52	43
DM	51	5	18	14	80
DP	40	78	29	46	29
DS	30	78	97	63	28
DT	23	27	13	16	39
EA	97	14	40	19	86
EM	44	46	81	63	9
EN	68	51	45	71	18
EO	87	68	40	14	66
EQ	6	10	6	16	94
ET	62	46	88	89	3
EW	87	39	95	96	56
FT	6	46	6	92	94
FTB	17	61	89	99	62
FTG	90	87	93	71	41
FTM	51	82	94	92	26
GM	6	68	6	84	94
GMG	73	46	60	56	27
GMM	34	82	82	81	55
GMT	51	2	73	77	47
GS	6	14	6	92	94
GSE	15	96	91	71	71
GSM	57	95	86	71	64
HM	30	74	16	63	2
HT	73	61	50	71	13
IC	79	33	70	63	23
IM	93	68	67	35	83

TABLE E-5 (CONT.)

RATING	SHORTAGE	GROWTH	COST	PRIORITY	SIZE
IS	79	87	66	33	69
JO	38	33	22	4	74
LI	44	54	17	6	79
LN	57	33	40	5	77
MA	68	91	56	3	58
ML	79	74	49	8	87
MM	51	20	60	96	1
MN	13	20	90	12	76
MR	73	68	63	56	44
MS	90	20	21	30	5
MT	13	39	82	84	39
MU	73	5	70	1	75
NC	96	68	84	6	70
OM	79	90	70	10	84
OS	73	54	74	63	15
OT	68	74	84	46	57
PC	57	27	15	10	68
PH	84	20	22	13	58
PI	6	99	6	19	94
PM	98	54	24	9	88
PN	19	20	36	27	14
PR	44	61	36	36	48
QM	73	57	50	81	32
RM	68	39	60	92	4
RP	84	98	20	2	81
SH	44	9	36	29	21
SK	23	27	36	38	11
SM	44	33	43	41	38
ST	6	94	6	87	94
STG	93	39	76	77	36
STS	34	68	96	81	34
SW	90	82	45	27	82
TD	19	74	76	21	37

TABLE E-5 (CONT.)

RATING	SHORTAGE	GROWTH	COST	PRIORITY	SIZE
TM	30	39	76	63	24
UT	79	82	33	18	67
YM	34	27	27	21	6

TABLE E-6

Rankings For FY-82 Zone C RSI Components*

RATING	SHORTAGE	GROWTH	COST	PRIORITY	SIZE
AB	7	3	4	46	96
ABE	38	20	59	63	54
ABF	23	14	39	46	53
ABH	34	27	19	46	34
AC	51	20	64	96	33
AD	26	74	43	77	5
AE	18	74	56	77	11
AF	7	27	4	71	96
AG	99	10	37	39	82
AK	51	33	11	32	23
AM	7	8	94	77	90
AME	29	87	39	52	36
AMH	16	87	32	52	15
AMS	44	51	29	52	14
AO	38	39	35	63	21
AQ	24	61	85	92	30
AS	38	61	43	52	46
ASE	7	93	8	63	86
ASM	7	1	19	58	73
AT	44	61	70	87	9
AV	7	33	4	87	96
AW	14	97	74	96	31
AX	51	61	78	84	45
AZ	60	14	14	36	27
BM	38	46	32	33	7
BT	6	7	62	71	16
BU	34	82	43	24	37
CE	73	54	32	24	66
CM	78	82	37	24	67
CTA	19	46	51	30	59

*Scaled from 1 for least severe to 99 for most severe impact on retention.

TABLE E-6 (CONT.)

RATING	SHORTAGE	GROWTH	COST	PRIORITY	SIZE
CTI	78	14	43	52	70
CTM	90	51	93	41	65
CTO	34	27	53	41	50
CTR	56	68	55	46	49
CTT	84	92	90	46	57
CU	7	4	4	24	96
DK	86	46	43	52	48
DM	44	5	17	14	83
DP	71	78	32	46	35
DS	90	78	96	63	46
DT	29	27	14	16	40
EA	29	14	50	19	85
EM	84	46	86	63	13
EN	82	51	48	71	20
EO	97	68	22	14	69
EQ	7	10	4	16	96
ET	88	46	83	89	8
EW	95	39	92	96	60
FT	7	46	98	92	89
FTB	86	61	87	99	79
FTG	93	87	89	71	37
FTM	98	82	91	92	52
GM	7	68	99	84	92
GMG	51	46	68	56	24
GMM	88	82	81	81	63
GMT	78	2	64	77	54
GS	7	14	97	92	90
GSE	67	96	88	71	77
GSM	78	95	84	71	71
HM	24	74	19	63	1
HT	67	61	53	71	10
IC	73	33	75	63	22
IM	21	68	64	35	79

TABLE E-6 (CONT.)

RATING	SHORTAGE	GROWTH	COST	PRIORITY	SIZE
IS	44	87	59	33	63
JO	44	33	14	4	72
LI	34	54	14	6	81
LN	67	33	23	5	78
MA	67	91	48	3	27
ML	60	74	26	8	87
MM	78	20	81	96	2
MN	15	20	76	12	75
MR	56	68	53	56	39
MS	95	20	21	30	6
MT	21	39	80	84	42
MU	51	5	56	1	62
NC	63	68	70	6	29
OM	60	90	64	10	84
OS	78	54	79	63	19
OT	60	74	73	46	56
PC	44	27	10	10	68
PH	60	20	9	13	58
PI	7	99	4	19	96
PM	63	54	35	9	88
PN	67	20	43	27	17
PR	29	61	24	36	44
QM	84	57	67	81	25
RM	44	39	59	92	3
RP	21	98	11	2	74
SH	29	9	26	29	18
SK	73	27	29	38	12
SM	73	33	48	41	41
ST	7	94	4	87	96
STG	95	39	77	77	43
STS	92	68	95	81	51
SW	44	82	59	27	76
TD	17	74	69	21	31

TABLE E-6 (CONT.)

RATING	SHORTAGE	GROWTH	COST	PRIORITY	SIZE
TM	56	39	72	63	26
UT	51	82	25	18	61
YM	34	27	28	21	4

TABLE E-7

Zone A Retention Severity Index Standardized Components*

RATING	SHORTAGE	GROWTH	COST	PRIORITY	SIZE
AB	50.2	36.4	22.6	53.0	57.2
ABE	51.3	44.1	50.8	55.4	53.5
ABF	51.3	43.3	49.6	53.0	54.1
ABH	51.0	45.0	49.3	53.0	50.9
AC	51.3	44.1	54.1	62.0	51.7
AD	50.8	52.7	50.9	56.6	36.2
AE	51.0	52.7	52.0	56.6	42.0
AF	50.2	45.0	22.6	56.0	57.2
AG	50.6	41.5	50.4	51.7	53.4
AK	51.3	45.8	49.3	48.7	48.4
AM	50.2	39.8	69.9	56.6	57.2
AME	51.0	55.3	52.0	53.6	52.4
AMH	51.1	55.3	50.1	53.6	48.2
AMS	50.8	48.4	50.4	53.6	41.7
AO	51.1	46.7	50.6	55.4	46.4
AQ	50.8	51.0	58.9	60.2	51.2
AS	50.2	51.0	59.3	53.6	57.2
ASE	51.3	62.2	52.1	55.4	55.8
ASM	51.4	28.6	54.3	54.8	54.5
AT	51.1	51.0	55.5	58.4	35.8
AV	50.2	45.8	22.6	58.4	57.2
AW	51.1	84.6	53.9	62.0	51.5
AX	51.6	51.0	57.5	57.8	53.9
AZ	51.6	43.3	48.8	50.5	51.8
BM	51.4	47.6	49.4	49.3	40.5
BT	51.1	38.9	51.6	56.0	36.1
BU	50.8	54.5	50.2	45.1	51.9
CE	51.2	49.3	52.3	45.1	55.0
CM	51.0	54.5	51.4	45.1	54.4
CTA	51.3	47.6	52.9	46.9	55.3

*Table E-1 transformed to mean 50 and standard deviation 10 for each component.

TABLE E-7 (CONT.)

RATING	SHORTAGE	GROWTH	COST	PRIORITY	SIZE
CTI	51.2	43.3	52.1	53.6	55.5
CTM	51.4	48.4	66.7	52.3	52.1
CTO	51.3	45.0	53.2	52.3	54.1
CTR	51.4	51.9	54.9	53.0	54.5
CTT	51.2	61.4	64.8	53.0	53.8
CU	50.2	37.2	22.6	45.1	57.2
DK	51.1	47.6	49.8	53.6	52.7
DM	51.4	38.1	48.9	39.6	56.5
DP	50.5	53.6	50.1	53.0	48.2
DS	50.8	53.6	57.9	55.4	49.1
DT	51.0	45.0	48.9	40.2	51.6
EA	50.9	43.3	50.0	42.7	56.5
EM	51.0	47.6	54.0	55.4	28.3
EN	51.0	48.4	49.7	56.0	41.9
EO	51.0	51.9	50.5	39.6	53.5
EQ	50.2	41.5	22.6	40.2	57.2
ET	51.0	47.6	56.3	59.6	11.6
EW	50.8	46.7	60.7	62.0	52.1
FT	50.2	47.6	22.6	60.2	57.2
FTB	50.4	51.0	56.8	63.3	54.6
FTG	51.0	55.3	58.2	56.0	48.9
FTM	51.5	54.5	59.8	60.2	49.7
GM	50.2	51.9	22.6	57.8	57.2
GMG	51.6	47.6	50.9	54.2	51.5
GMM	51.4	54.5	53.5	57.2	54.7
GMT	51.2	32.9	52.7	56.6	53.7
GS	50.2	43.3	22.6	60.2	57.2
GSE	51.6	73.4	55.9	56.0	56.2
GSM	51.2	71.7	55.4	56.0	54.2
HM	51.1	52.7	49.0	55.4	19.3
HT	51.3	51.0	50.2	56.0	36.6
IC	51.3	45.8	52.3	55.4	43.9
IM	51.8	51.9	52.5	49.9	56.5

TABLE E-7 (CONT.)

RATING	SHORTAGE	GROWTH	COST	PRIORITY	SIZE
IS	50.9	55.3	54.0	49.3	54.9
JO	51.1	45.8	49.2	25.1	55.5
LI	50.8	49.3	48.6	31.1	56.1
LN	51.7	45.8	54.0	28.1	56.8
MA	-48.1	58.8	55.6	22.0	57.0
ML	51.9	52.7	50.4	34.2	57.0
MM	51.0	44.1	52.3	62.0	-4.4
MN	51.6	44.1	57.1	37.8	56.4
MR	51.7	51.9	50.2	54.2	53.3
MS	51.7	44.1	50.4	46.9	36.0
MT	50.8	46.7	55.2	57.8	52.1
MU	52.2	38.1	56.7	13.6	56.5
NC	44.8	51.9	55.2	31.1	57.2
OM	51.9	57.0	52.7	37.2	56.8
OS	51.4	49.3	53.2	55.4	41.8
OT	51.1	52.7	55.4	53.0	54.3
PC	51.6	45.0	48.9	37.2	55.3
PH	50.5	44.1	51.7	38.4	52.2
PI	50.2	100.1	22.6	42.7	57.2
PM	51.3	49.3	50.5	36.0	57.0
PN	50.7	44.1	50.0	45.7	42.6
PR	51.3	51.0	51.7	50.5	53.7
QM	51.4	50.1	50.0	57.2	50.7
RM	51.4	46.7	52.7	60.2	30.2
RP	51.3	87.2	49.6	16.6	56.1
SH	51.6	40.7	50.1	46.3	50.0
SK	51.5	45.0	49.8	51.1	44.2
SM	51.6	45.8	50.5	52.3	52.8
ST	50.2	67.4	22.6	58.4	57.2
STG	51.0	46.7	53.9	56.6	47.0
STS	50.4	51.9	62.0	57.2	46.6
SW	50.5	54.5	50.1	45.7	55.3
TD	51.2	52.7	55.4	43.9	53.2

TABLE E-7 (CONT.)

RATING	SHORTAGE	GROWTH	COST	PRIORITY	SIZE
TM	51.1	46.7	54.0	55.4	50.2
UT	51.3	54.5	50.4	40.8	55.0
YM	51.0	45.0	49.8	43.9	34.7

TABLE E-8

Zone B Retention Severity Index Standardized Components*

RATING	SHORTAGE	GROWTH	COST	PRIORITY	SIZE
AB	23.4	36.4	23.0	52.9	57.8
ABE	50.5	44.1	52.5	55.4	53.7
ABF	50.5	43.3	50.5	52.9	54.0
ABH	50.5	45.0	50.0	52.9	50.8
AC	52.2	44.1	54.2	62.0	50.6
AD	54.3	52.7	51.9	56.6	36.4
AE	53.9	52.7	53.4	56.6	43.6
AF	23.4	45.0	23.0	56.0	57.8
AG	53.1	41.5	51.6	51.7	54.6
AK	53.1	45.8	49.4	48.7	47.0
AM	23.4	39.8	23.0	56.6	57.8
AME	53.9	55.3	52.7	53.5	52.8
AMH	50.9	55.3	51.0	53.5	45.1
AMS	53.5	48.4	51.4	53.5	42.5
AO	53.1	46.7	52.0	55.4	46.0
AQ	53.9	51.0	57.6	60.2	52.3
AS	63.4	51.0	55.2	53.5	57.3
ASE	53.5	62.2	50.8	55.4	56.6
ASM	53.9	28.6	53.2	54.7	55.2
AT	51.3	51.0	55.3	58.4	31.7
AV	23.4	45.8	23.0	58.4	57.8
AW	37.6	84.6	55.2	62.0	49.0
AX	55.6	51.0	56.4	57.8	53.9
AZ	56.5	43.3	48.9	51.5	51.0
BM	50.5	47.6	50.9	49.3	31.6
BT	49.2	38.9	52.6	56.0	33.8
BU	56.1	54.5	51.2	45.0	54.1
CE	57.8	49.3	52.8	45.0	56.0
CM	57.8	54.5	51.3	45.0	55.9
CTA	48.3	47.6	52.5	46.9	54.7

*Table E-2 transformed to mean 50 and standard deviation 10 for each component.

TABLE E-8 (CONT.)

RATING	SHORTAGE	GROWTH	COST	PRIORITY	SIZE
CTI	51.8	43.3	53.1	53.5	54.9
CTM	49.2	48.4	62.4	52.3	50.9
CTO	50.1	45.0	52.9	52.3	53.1
CTR	51.8	51.9	53.9	52.9	54.1
CTT	52.6	61.4	61.5	52.9	53.4
CU	23.4	37.2	23.0	45.0	57.8
DK	53.9	47.6	51.9	53.5	52.4
DM	53.1	38.1	50.0	39.6	56.7
DP	52.2	53.6	51.0	52.9	50.5
DS	50.9	53.6	61.5	55.4	49.8
DT	50.1	45.0	49.0	40.2	51.9
EA	59.5	43.3	51.6	42.6	57.4
EM	52.6	47.6	55.4	55.4	32.8
EN	54.3	48.4	51.9	56.0	43.9
EO	56.9	51.9	51.6	39.6	55.3
EQ	23.4	41.5	23.0	40.2	57.8
ET	53.9	47.6	56.5	59.6	21.0
EW	56.9	46.7	59.8	62.0	54.4
FT	23.4	47.6	23.0	60.2	57.8
FTB	48.8	51.0	56.6	63.2	54.9
FTG	57.3	55.3	58.1	56.0	52.1
FTM	53.1	54.5	59.4	60.2	49.2
GM	23.4	51.9	23.0	57.8	57.8
GMG	54.8	47.6	53.1	54.1	49.8
GMM	51.3	54.5	55.6	57.2	54.3
GMT	53.1	32.9	54.5	56.6	53.3
GS	23.4	43.3	23.0	60.2	57.8
GSE	47.9	73.4	57.2	56.0	55.9
GSM	53.5	71.7	56.4	56.0	55.2
HM	50.9	52.7	49.6	55.4	16.6
HT	54.8	51.0	52.3	56.0	37.9
IC	55.6	45.8	54.1	55.4	47.4
IM	57.8	51.9	53.9	49.9	56.9

TABLE E-8 (CONT.)

RATING	SHORTAGE	GROWTH	COST	PRIORITY	SIZE
IS	55.6	55.3	53.8	49.3	55.8
JO	51.8	45.8	50.3	25.0	56.0
LI	52.6	49.3	49.9	31.1	56.7
LN	53.5	45.8	51.6	28.1	56.5
MA	54.3	58.8	52.8	22.0	54.6
ML	55.6	52.7	52.1	34.1	57.5
MM	53.1	44.1	53.1	62.0	2.1
MN	47.5	44.1	56.7	37.8	56.5
MR	54.8	51.9	53.2	54.1	52.4
MS	57.3	44.1	50.2	46.9	29.1
MT	47.5	46.7	55.6	57.8	51.9
MU	54.8	38.1	54.1	13.5	56.2
NC	59.1	51.9	55.8	31.1	55.8
OM	55.6	57.0	54.1	37.2	57.1
OS	54.8	49.3	54.7	55.4	41.6
OT	54.3	52.7	55.8	52.9	54.5
PC	53.5	45.0	49.5	37.2	55.7
PH	56.1	44.1	50.3	38.4	54.6
PI	23.4	100.1	23.0	42.6	57.8
PM	61.2	49.3	50.5	36.0	57.7
PN	49.2	44.1	51.5	45.7	39.2
PR	52.6	51.0	51.5	50.5	53.4
QM	54.8	50.1	52.3	57.2	50.8
RM	54.3	46.7	53.1	60.2	28.8
RP	56.1	87.2	50.1	16.6	56.7
SH	52.6	40.7	51.5	46.3	46.8
SK	50.1	45.0	51.5	51.1	34.3
SM	52.6	45.8	51.8	52.3	51.7
ST	23.4	67.4	23.0	58.4	57.8
STG	57.8	46.7	55.1	56.6	51.2
STS	51.3	51.9	61.2	57.2	50.9
SW	57.3	54.5	51.9	45.7	56.8
TD	49.2	52.7	55.1	43.8	51.4

TABLE E-8 (CONT.)

RATING	SHORTAGE	GROWTH	COST	PRIORITY	SIZE
TM	50.9	46.7	55.1	55.4	48.8
UT	55.6	54.5	51.4	40.8	55.6
YM	51.3	45.0	50.9	43.8	29.6

TABLE E-9

Zone C Retention Severity Index Standardized Components*

RATING	SHORTAGE	GROWTH	COST	PRIORITY	SIZE
AB	26.1	36.4	26.2	52.9	58.1
ABE	52.2	44.1	50.3	55.4	54.2
ABF	50.3	43.3	49.6	52.9	54.1
ABH	51.8	45.0	48.4	52.9	51.3
AC	53.0	44.1	50.6	62.0	51.1
AD	51.1	52.7	49.6	56.6	25.6
AE	47.5	52.7	50.2	56.6	35.8
AF	26.1	45.0	26.2	56.0	58.1
AG	62.5	41.5	49.5	51.7	56.9
AK	53.0	45.8	48.0	48.7	47.1
AM	26.1	39.8	55.9	56.6	58.1
AME	51.4	55.3	49.6	53.5	52.2
AMH	46.3	55.3	49.2	53.5	40.3
AMS	52.6	48.4	49.1	53.5	40.1
AO	52.2	46.7	49.4	55.4	44.5
AQ	50.7	51.0	52.6	60.2	50.2
AS	52.2	51.0	49.6	53.5	53.5
ASE	26.1	62.2	46.7	55.4	57.4
ASM	26.1	28.6	48.4	54.7	56.0
AT	52.6	51.0	51.0	58.4	33.1
AV	26.1	45.8	26.2	58.4	58.1
AW	32.9	84.6	51.6	62.0	50.9
AX	53.0	51.0	51.9	57.8	53.5
AZ	53.8	43.3	48.0	50.5	49.7
BM	52.2	47.6	49.2	49.3	29.4
BT	54.6	38.9	50.5	56.0	40.9
BU	51.8	54.5	49.6	45.0	52.3
CE	55.4	49.3	49.2	45.0	55.3
CM	55.8	54.5	49.5	45.0	55.3
CTA	49.5	47.6	50.0	46.9	55.0

*Table E-3 transformed to mean 50 and standard deviation 10 for each component

TABLE E-9 (CONT.)

RATING	SHORTAGE	GROWTH	COST	PRIORITY	SIZE
CTI	55.8	43.3	49.6	53.5	55.7
CTM	57.8	48.4	54.6	52.3	55.2
CTO	51.8	45.0	50.1	52.3	53.9
CTR	53.4	51.9	50.2	52.9	53.9
CTT	56.6	61.4	54.0	52.9	54.5
CU	26.1	37.2	26.2	45.0	58.1
DK	57.0	47.6	49.6	53.5	53.6
DM	52.6	38.1	48.1	39.6	57.1
DP	55.0	53.6	49.2	52.9	51.6
DS	57.8	53.6	56.6	55.4	53.5
DT	51.4	45.0	48.0	40.2	52.7
EA	51.4	43.3	49.9	42.6	57.3
EM	56.6	47.6	52.9	55.4	38.1
EN	56.2	48.4	49.8	56.0	43.9
EO	59.7	51.9	48.5	39.6	55.4
EQ	26.1	41.5	26.2	40.2	58.1
ET	57.4	47.6	52.4	59.6	32.4
EW	59.4	46.7	54.3	62.0	55.0
FT	26.1	47.6	94.4	60.2	58.0
FTB	57.0	51.0	53.1	63.2	56.5
FTG	59.0	55.3	53.6	56.0	52.3
FTM	60.9	54.5	54.0	60.2	54.1
GM	26.1	51.9	95.1	57.8	58.1
GMG	53.0	47.6	50.7	54.1	47.4
GMM	57.4	54.5	52.4	57.2	55.2
GMT	55.8	32.9	50.6	56.6	54.2
GS	26.1	43.3	88.2	60.2	58.1
GSE	54.6	73.4	53.5	56.0	56.3
GSM	55.8	71.7	52.5	56.0	55.8
HM	50.7	52.7	48.4	55.4	12.4
HT	54.6	51.0	50.1	56.0	34.5
IC	55.4	45.8	51.7	55.4	47.0
IM	49.9	51.9	50.6	49.9	56.5

TABLE E-9 (CONT.)

RATING	SHORTAGE	GROWTH	COST	PRIORITY	SIZE
IS	52.6	55.3	50.3	49.3	55.2
JO	52.6	45.8	48.0	25.0	56.0
LI	51.8	49.3	48.0	31.1	56.9
LN	54.6	45.8	48.6	28.1	56.4
MA	54.6	58.8	49.8	22.0	49.7
ML	53.8	52.7	49.0	34.1	57.6
MM	55.8	44.1	52.4	62.0	13.5
MN	45.1	44.1	51.8	37.8	56.1
MR	53.4	51.9	50.1	54.1	52.4
MS	59.4	44.1	48.5	46.9	25.8
MT	49.9	46.7	52.2	57.8	53.1
MU	53.0	38.1	50.2	13.5	55.2
NC	54.2	51.9	51.0	31.1	50.0
OM	53.8	57.0	50.6	37.2	57.2
OS	55.8	49.3	52.0	55.4	43.5
OT	53.8	52.7	51.3	52.9	54.4
PC	52.6	45.0	47.9	37.2	55.3
PH	53.8	44.1	47.7	38.4	54.6
PI	26.1	100.1	26.2	42.6	58.1
PM	54.2	49.3	49.4	36.0	57.6
PN	54.6	44.1	49.6	45.7	41.7
PR	51.4	51.0	48.8	50.5	53.3
QM	56.6	50.1	50.7	57.2	49.3
RM	52.6	46.7	50.3	60.2	22.8
RP	49.9	87.2	48.0	16.6	56.1
SH	51.4	40.7	49.0	46.3	42.4
SK	55.4	45.0	49.1	51.1	36.6
SM	55.4	45.8	49.8	52.3	52.8
ST	26.1	67.4	26.2	58.4	58.1
STG	59.4	46.7	51.8	56.6	53.3
STS	58.2	51.9	56.0	57.2	54.0
SW	52.6	54.5	50.3	45.7	56.2
TD	46.7	52.7	50.9	43.8	50.9

TABLE E-9 (CONT.)

RATING	SHORTAGE	GROWTH	COST	PRIORITY	SIZE
TM	53.4	46.7	51.2	55.4	49.3
UT	53.0	54.5	48.9	40.8	55.1
YM	51.8	45.0	49.1	43.8	24.5

APPENDIX F: SRB BONUS MULTIPLES

TABLE F-1

FY-82 Bonus Multiple Assignments with Rankings by SRB Zones

RATING	Bonus Multiples			Rankings[a]		
	Zone A	Zone B	Zone C	Zone A	Zone B	Zone C
AB	0.0	0.0	0	21	17	39
ABE	2.0	3.0	2	63	62	89
ABF	0.0	0.0	0	21	17	39
ABH	0.0	0.0	0	21	17	39
AC	6.0	6.0	6	94	92	99
AD	1.0	1.0	0	49	39	39
AE	2.0	2.0	0	63	50	39
AF	0.0	0.0	0	21	17	39
AG	0.0	2.0	2	21	50	89
AK	0.0	1.0	0	21	39	39
AM	0.0	0.0	0	21	17	39
AME	0.5	2.0	0	42	50	39
AMH	0.0	0.0	0	21	17	39
AMS	0.0	0.0	0	21	17	39
AO	1.0	2.0	2	49	50	89
AQ	6.0	5.0	2	94	79	89
AS	0.0	1.0	0	21	39	39
ASE	1.0	1.0	0	49	39	39
ASM	0.0	0.0	0	21	17	39
AT	5.0	4.0	0	87	71	39
AV	0.0	0.0	0	21	17	39
AW	4.0	6.0	0	84	92	39
AX	3.0	3.0	0	76	62	39
AZ	0.0	1.0	0	21	39	39
BM	0.0	0.5	0	21	34	39
BT	6.0	6.0	2	94	92	89
BU	2.0	3.0	0	63	62	39
CE	2.0	3.0	0	63	62	39

[a]Scaled from 1 for lowest to 99 for highest bonus multiple

TABLE F-1 (CONT.)

RATING	Zone A	Zone B	Zone C	Zone A	Zone B	Zone C
CM	0.0	4.0	0	21	71	39
CTA	0.0	0.0	0	21	17	39
CTI	2.0	6.0	0	63	92	39
CTM	4.0	5.0	1	84	79	82
CTO	1.0	3.0	0	49	62	39
CTR	1.0	5.0	0	49	79	39
CTT	3.0	6.0	0	76	92	39
CU	0.0	0.0	0	21	17	39
DK	0.0	0.0	0	21	17	39
DM	0.0	0.0	0	21	17	39
DP	0.0	3.0	0	21	62	39
DS	6.0	5.0	4	94	79	97
DT	0.0	0.0	0	21	17	39
EA	1.0	2.0	0	49	50	39
EM	6.0	6.0	0	94	92	39
EN	1.0	3.0	0	49	62	39
EO	2.0	2.0	0	63	50	39
EQ	0.0	0.0	0	21	17	39
ET	6.0	6.0	3	94	92	95
EW	4.0	5.0	5	84	79	98
FT	0.0	0.0	0	21	17	39
FTB	2.0	5.0	0	63	79	39
FTG	3.0	3.0	0	76	62	39
FTM	6.0	6.0	2	94	92	89
GM	0.0	0.0	0	21	17	39
GMG	2.0	1.0	0	63	39	39
GMM	4.0	6.0	3	84	92	95
GMT	4.0	5.0	3	84	79	95
GS	0.0	6.0	0	21	92	39
GSE	6.0	6.0	0	94	92	39
GSM	6.0	6.0	0	94	92	39
HM	0.0	0.0	0	21	17	39
HT	3.0	4.0	1	76	71	82

TABLE F-1 (CONT.)

RATING	Zone A	Zone B	Zone C	Zone A	Zone B	Zone C
IC	3.0	4.0	1	76	71	82
IM	3.0	3.0	1	76	62	82
IS	2.0	4.0	0	63	71	39
JO	0.0	0.0	0	21	17	39
LI	0.0	0.0	0	21	17	39
LN	1.0	0.0	0	49	17	39
MA	0.0	0.0	0	21	17	39
ML	2.0	1.0	0	63	39	39
MM	6.0	6.0	1	94	92	82
MN	2.0	1.0	0	63	39	39
MR	2.0	2.0	0	63	50	39
MS	3.0	3.0	0	76	62	39
MT	3.0	5.0	0	76	79	39
MU	0.0	0.0	0	21	17	39
NC	0.0	0.0	0	21	17	39
OM	3.0	2.0	0	76	50	39
OS	6.0	6.0	2	94	92	89
OT	1.0	1.0	0	49	39	39
PC	0.0	0.0	0	21	17	39
PH	0.0	1.0	0	21	39	39
PI	0.0	0.0	0	21	17	39
PM	3.0	4.0	0	76	71	39
PN	0.0	0.0	0	21	17	39
PR	1.0	2.0	0	49	50	39
QM	2.0	2.0	1	63	50	82
RM	1.0	3.0	0	49	62	39
RP	0.0	0.0	0	21	17	39
SH	0.5	0.0	0	42	17	39
SK	0.0	0.0	0	21	17	39
SM	2.0	4.0	0	63	71	39
ST	0.0	0.0	0	21	17	39
STG	3.0	6.0	1	76	92	82

TABLE F-1 (CONT.)

RATING	Zone A	Zone B	Zone C	Zone A	Zone B	Zone C
STS	2.0	5.0	0	63	79	39
SW	1.0	2.0	0	49	50	39
TD	0.0	0.0	0	21	17	39
TM	5.0	5.0	2	87	79	89
UT	0.0	2.0	0	21	50	39
YM	0.0	0.0	0	21	17	39

Source: OP-136 (SRB Manager)

TABLE F-2

FY-83 Bonus Multiple Assignments with Rankings by SRB Zones

RATING	Bonus Multiples			Rankings[a]		
	Zone A	Zone B	Zone C	Zone A	Zone B	Zone C
AB	0.0	0.0	0.0	28	24	40
ABE	0.5	1.5	0.0	56	60	40
ABF	0.0	0.0	0.0	28	24	40
ABH	0.0	0.0	0.0	28	24	40
AC	4.5	4.5	0.0	93	95	40
AD	0.0	0.0	0.0	28	24	40
AE	0.0	0.0	0.0	28	24	40
AF	0.0	0.0	0.0	28	24	40
AG	0.0	0.0	0.0	28	24	40
AK	0.0	0.0	0.0	28	24	40
AM	0.0	0.0	0.0	28	24	40
AME	0.0	0.0	0.0	28	24	40
AMH	0.0	0.0	0.0	28	24	40
AMS	0.0	0.0	0.0	28	24	40
AO	0.0	1.0	0.0	28	55	40
AQ	4.5	4.5	0.0	93	95	40
AS	0.0	0.0	0.0	28	24	40
ASE	1.0	1.0	0.0	62	55	40
ASM	1.0	0.0	0.0	62	24	40
AT	3.5	3.0	0.0	86	79	40
AV	0.0	0.0	0.0	28	24	40
AW	1.0	2.5	0.0	62	71	40
AX	4.5	3.0	0.5	93	79	81
AZ	0.0	0.0	0.0	28	24	40
BM	0.0	0.0	0.0	28	24	40
BT	3.5	4.5	0.5	86	95	81
BU	0.0	1.5	0.0	28	60	40
CE	1.0	1.5	0.0	62	60	40

[a]Scaled from 1 for lowest to 99 for highest bonus multiple

TABLE F-2 (CONT.)

RATING	Zone A	Zone B	Zone C	Zone A	Zone B	Zone C
CM	0.0	2.0	0.0	28	66	40
CTA	0.0	0.0	0.0	28	24	40
CTI	1.0	4.0	0.0	62	90	40
CTM	3.0	3.5	0.0	82	86	40
CTO	0.0	0.0	0.0	28	24	40
CTR	1.0	3.0	0.0	62	79	40
CTT	1.0	3.0	0.0	62	79	40
CU	0.0	0.0	0.0	28	24	40
DK	0.0	0.0	0.0	28	24	40
DM	0.0	0.0	0.0	28	24	40
DP	0.0	1.5	0.0	28	60	40
DS	4.5	3.5	4.0	93	86	99
DT	0.0	0.0	0.0	28	24	40
EA	0.5	0.5	0.0	56	50	40
EM	5.0	4.0	0.0	98	90	40
EN	0.0	1.0	0.0	28	55	40
EO	0.0	2.0	0.0	28	66	40
EQ	0.0	0.0	0.0	28	24	40
ET	5.0	5.0	2.0	98	99	94
EW	4.0	3.5	3.0	89	86	98
FT	0.0	0.0	0.0	28	24	40
FTB	1.0	3.0	1.0	62	79	87
FTG	4.0	3.0	1.0	89	79	87
FTM	4.0	4.5	2.5	89	95	97
GM	0.0	0.0	0.0	28	24	40
GMG	2.0	0.0	0.0	72	24	40
GMM	3.0	3.5	1.0	82	86	87
GMT	2.5	3.0	1.5	76	79	91
GS	0.0	0.0	2.0	28	24	94
GSE	5.0	4.5	2.0	98	95	94
GSM	4.5	4.5	2.0	93	95	94
HM	0.0	0.0	0.0	28	24	40
HT	2.5	2.0	1.0	76	66	87

TABLE F-2 (CONT.)

RATING	Zone A	Zone B	Zone C	Zone A	Zone B	Zone C
IC	3.0	3.0	1.0	82	79	87
IM	3.0	2.0	0.0	82	66	40
IS	0.0	2.0	0.0	28	66	40
JO	0.0	0.0	0.0	28	24	40
LI	0.0	0.0	0.0	28	24	40
LN	0.0	0.0	0.0	28	24	40
MA	0.0	0.0	0.0	28	24	40
ML	1.0	1.0	0.0	62	55	40
MM	3.0	3.0	0.5	82	79	81
MN	0.0	0.0	0.0	28	24	40
MR	2.0	1.0	0.0	72	55	40
MS	2.5	2.5	0.0	76	71	40
MT	1.0	3.0	1.0	62	79	87
MU	0.0	0.0	0.0	28	24	40
NC	0.0	0.0	0.0	28	24	40
OM	3.0	1.0	0.0	82	55	40
OS	4.5	4.5	0.5	93	95	81
OT	0.0	0.0	0.0	28	24	40
PC	0.0	0.0	0.0	28	24	40
PH	0.0	0.0	0.0	28	24	40
PI	0.0	0.0	0.0	28	24	40
PM	2.5	2.0	0.0	76	66	40
PN	0.0	0.0	0.0	28	24	40
PR	0.0	0.0	0.0	28	24	40
QM	2.0	1.0	0.0	72	55	40
RM	1.5	2.5	0.0	69	71	40
RP	0.0	0.0	0.0	28	24	40
SH	0.0	0.0	0.0	28	24	40
SK	0.0	0.0	0.0	28	24	40
SM	1.5	2.0	0.0	69	66	40
ST	0.0	0.0	0.0	28	24	40
STG	3.0	4.0	1.0	82	90	87

TABLE F-2 (CONT.)

RATING	Zone A	Zone B	Zone C	Zone A	Zone B	Zone C
STS	1.5	2.5	1.5	69	71	91
SW	0.0	0.5	0.0	28	50	40
TD	0.0	0.0	0.0	28	24	40
TM	2.5	3.0	0.0	76	79	40
UT	0.0	0.5	0.0	28	50	40
YM	0.0	0.0	0.0	28	24	40

Source: OP-136 (SRB Manager)

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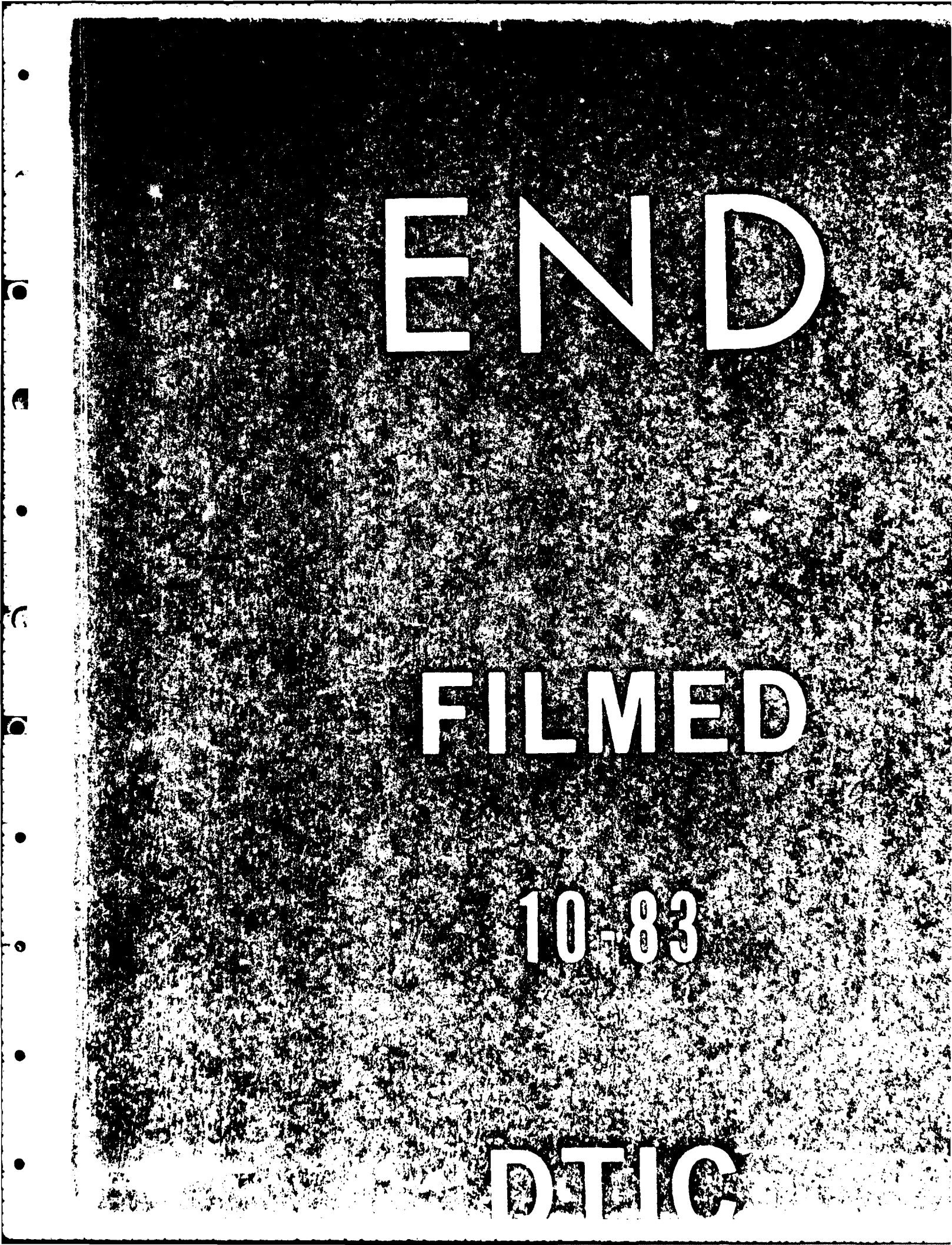
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